

THE EASTERN ANTHROPOLOGIST

Vol. XII, No. 3]

[March—May, 1959]

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Editor : D. N. Majumdar

Foreign Editor : C. Von Fürer-Haimendorf

Published by the Ethnographic and Folk Culture Society, U. P.,

Department of Anthropology, Lucknow University,
Lucknow, (India).

THE EASTERN ANTHROPOLOGIST

(A Quarterly Record of Ethnography and Folk Culture)

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Annual Subscription payable in advance Rs. 15/00

or £ 1-5-0 or \$ 4.00 Foreign. Single Copy Rs. 4/00

Published by the Ethnographic & Folk Culture Society,
U.P., Anthropology Department, Lucknow University, India.

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QUANTITATIVE STUDIES IN SOCIOLOGY : NEED FOR INCREASED USE IN INDIA

C. RADHAKRISHNA RAO

INTRODUCTION

"When you can measure what you are speaking about and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind." This statement of Lord Kelvin emphasises the important role played by "measurement and quantity" in science, providing as it does a certain precision of thought in describing natural phenomenon as also objectivity, rationality and rigour to the process of subjecting hypothetical laws to tests and drawing inferences. Several concepts, promising as they appear when first put forward, remain vague and are liable to be misunderstood or misused because of the lack of quantitative definitions. As the process of their verification is naturally slow, they rest more on the authority of individuals and their enthusiastic supporters rather than on their intrinsic merits and continue to influence the thoughts of research workers until such time when another body of concepts gains ground, for no other reasons than that they are new and different. Progress in research is thus retarded. May be, the behavioural sciences have to pass through an unavoidable stage in their development before they are fully reconciled with the quantitative approach. The sooner the adoption of a quantitative outlook takes place and the more this outlook is cultivated in any science, the greater would be its progress. We are aware how the introduction of quantitative methods by Sir Francis Galton has revolutionised research in Biology and led to several important discoveries.

THE STATISTICAL APPROACH

Misconceptions about the role of statistics as a scientific method still seem to exist. No doubt, some of these have arisen due to the misuse of statistical techniques themselves. It has been said that

"the statistical aspects of research are boring and tedious, they only prove or verify propositions already known intuitively and, therefore, they should not be indulged in by those with higher creative potentialities, but should be left to clerks!" But this is to take a very narrow view of statistics as something which consists of dull and drab formulae for computing descriptive constants and when necessary, for testing certain offered hypotheses. These are merely some of the tools employed by a statistician in his wider activity of 'arguing from the particular to the general' or 'analysing the cause of events and building up a system of general laws', which consists of three main stages. The first consists of the collection of facts, the second of formulating a hypothesis, which if it is true, would explain the facts observed and the third of deducing from the hypothesis consequences which can be verified by further observation.

The formulating of a hypothesis to fit the observations is a job which is not intellectually less stimulating; in fact, it is a job which calls for a creative intellect to send speculative probes into observed facts and gather clues of underlying phenomena. This is the essence of statistical approach. It does not consist in merely computing averages and indices or simply testing hypotheses by using appropriate formulae. A statistician is not a clerk par excellence, who can just use his formulae efficiently. While this he has to do as a technician trained to do a skilled job, his main task is to make the figures tell their own story. It would be a pity if higher creative potentialities are allowed to run riot and to waste just for advancing new concepts which have no relation to existing facts. To argue that rapid strides in research are possible only through hunches or from semi-mystic sources is to deny that we can learn from experience.

NEED FOR AN INTER-DISCIPLINARY TEAM

Often a statistician is called upon to examine data collected by a research worker in some behavioural science or the other. For a statistician to step in at this stage and analyse the data, in the collection of which he had no hand, is a hard job. The research worker is often unable to communicate to the statistician the purpose of the enquiry, or specify what the data are expected to reveal in terms in which the latter can understand. All that the research worker is usually definite about is that the data are meant for statistical analysis, on which he seeks the advice of a statistician! The situation is indeed somewhat pathological.

The fault lies in the way the statistician and the social scientist collaborate in trying to solve problems. Since the statistician had the opportunity to look at the data only after they had been collected, he has an excuse to say that the data given to him were incomplete

or collected and recorded in a form which cannot be easily processed to provide valid information. He may have adequate reasons for saying so. He is not an alchemist expected to produce gold out of worthless material. An expensive investigation goes to waste because of lack of comparable data, bias in observations due to inadequate or improper representation of units of the population surveyed, insufficiency of the number of units examined, incompleteness of data due to non-availability of information on some relevant concomitant variables, lack of internal evidence to provide the precision of the estimates computed from the data or the level of confidence in the inferences drawn and perhaps a score more of other reasons. The statistician, if he has the necessary experience and is competent in his craft, should be able to advise the investigator on all these aspects. He will be mentally better prepared to undertake the statistical analysis of data collected according to the rules of his trade. He should have no excuses to offer. Give the statistician a chance right from the beginning of the investigation to share the responsibility for what may go wrong at the end.

The statistician, naturally, cannot be a specialist in any of the fields of investigation in which he may be called upon to advise. If he has to function effectively, it is necessary for him to understand the problem under investigation in concrete terms and this requires a proper communication between the investigator and the statistician. The statistician has to formulate the problem in his own jargon in order to apply his tools. The formulation cannot be correct unless he acquires some knowledge of the subject-matter of the field of investigation either by a discussion with the investigator or by independent study.

The need to know what the other person is talking about is not onesided. The social scientist has got to be exposed to some amount of statistical training. We then have a perfect team with proper communication established between its members, which should be able to function effectively, unless the sociological problems of adjustments in team work raise an upper hand and prevent a free collaboration.

It is no longer true that important contributions cannot be made by a team of workers. A 'sputnik' could not have been sent up by an individual working in isolation. Much is heard, nowadays, of inter-disciplinary teams with all its members working as in a joint enterprise, each one freely contributing to the extent he is capable, of, towards the solution of a problem. An excellent example is that of Operational Research which needs for its existence, shall we say, as a separate discipline, a team of workers drawn from various existing disciplines and working on problems which cannot be categorised as belonging to any particular established field of study. Team work

has forced itself as vitally important in the solution of many complex problems related to our sociological and economic activities.

In India, we are today passing through a critical phase of existence trying to achieve a unity of purpose among the various linguistic and religious groups, and combating poverty and disease afflicting our vast population. The Government has a large part to play through proper legislation and optimum utilization of the vast resources of our country if a speedy solution of the problems have to be found. Big changes are expected in the near future in the economic activity of the country, which will have a tremendous impact on the social structure and organisation which does not seem to have received enough attention. If we are aiming at a welfare state, it is our duty to bring to the notice of our Government the sociological implications of every decision it takes. The Government will be defeating its purpose if what it does is based upon utopian dogmas and does not directly concern the benefit of the society. To help the Government in this direction, extensive field studies are needed aiming at quantitative assessments of changes taking place in the society; this can be profitably undertaken by sociologists and statisticians working together. It is my intention to develop this theme further in the rest of this paper by considering some concrete illustrations.

The collaboration between the sociologist and statistician need not necessarily be restricted to sociological investigations only. The statistician must recognise that the sociologist can be of immense help to him in other spheres of his activities. Let us consider, for instance, the organisation of a large-scale multi-purpose and continuing sample survey like the National Sample Survey (NSS) which was instituted by the Government in 1951, under the technical guidance of the Indian Statistical Institute. It has now 450 field investigators going round 5000 villages two to three times a year, collecting information on socio-economic and demographic aspects. Apart from direct observation on the field for area and yield of commercial crops in different localities, the NSS, as other organizations do, uses the interview method as the chief measuring instrument for the bulk of the information sought. The replies elicited from a respondent at an interview have to be entered on a schedule which is packed with questions, perhaps arranged in a form more convenient to the statistician to analyse the results, asking the respondent to confess his sins (as in Kinsey's investigation of sexual behaviour), making him dig his past and remember unpleasant events (to answer questions such as how many sons died and at what ages), taxing his memory to an unreliable extent (to answer questions such as how much money was spent on children's clothing during the last year ended in a certain month) and in general, questions relating to a wide variety of subjects. The validity and reliability of information obtained by the interview

method depends, to a large extent, on the personality of the interviewer and the techniques adopted by him. The method of successful interviewing, involving problems such as determining the sequence in which the questions have to be put, the manner of self-introduction which makes the interview easier, the conversational method of eliciting the information uninfluenced by his own opinions and faithfully recording the data during the interview or by subsequent recall, is a subject for the sociologist to study and any research work done in this direction is of immense value to the fact-finders.

A large-scale sample survey like the NSS creates complex organisational problems which need the attention of sociologists. There is a large body of investigators working in different parts of the country, leading perhaps a nomadic existence travelling from one village to another and depriving themselves of the comforts of family life and home. Yet, these constitute the nerve endings of the system, upon whose sensitiveness depend the quality of the information gathered and transmitted. There is some natural aversion to work in villages under the bad conditions obtainable there and the investigators may have a tendency to look out for less trying jobs. The recruitment and training of new personnel becomes a continuing feature. All these problems need an urgent sociological study.

DIFFICULTIES OF SOCIOMETRIC RESEARCH

The success of the statistical method in biological and medical sciences is primarily due to the possibility of experimentation with the following essential features: (1) all the extraneous factors except those under study can be effectively controlled, (2) effects of the levels of the factors to be compared can be studied on relatively homogeneous material so that the variation due to uncontrollable causes is minimised to a large extent, (3) errors of observation and recording can be minimised by taking measurements under proper supervision and checking, if necessary, (4) there is a possibility of adequate replication depending on the resources available, and (5) the levels of factors to be compared can be randomised over the experimental units to avoid bias in comparisons and make the inference valid. Unfortunately, none of these features are easily obtainable in sociological research. Some methods available in sociometric literature¹ are briefly reviewed here.

Projected design. If it is desired to examine whether with increased standard of living, there is a tendency to produce less children, we may imagine the following experiment satisfying the principles enunciated above. Two groups of individuals of almost equal socio-economic status, age distribution, etc. are chosen and a specified amount of extra income per month is given to individuals of a

randomly chosen group. Care is taken to see that no external factors are operating differentially on the groups during the period of observation, as for example, when one group is exposed to propaganda for birth control and not the other. After a period of time, the birth rate in the two groups can be ascertained and validly compared. Such an experiment of the projected design type where new situations are created, to which are exposed certain specified individuals, and the effects studied over a period of time, is clearly impossible in practice.

Even if initial difficulties are surmounted and the experiment is set going, uncontrollable disruptive forces of far greater strength than those introduced sometimes arise from within the society and vitiate the comparisons.

Leslie and Berry reported an experiment for studying attitude changes towards the United Nations. One batch of students was given a course on U.N. under the disguised title 'Social organisation in a changing world', to avoid a bias in the selection of students specifically on the basis of interest in the United Nations. Members of a class in the 'Sociology of the family' served as the control group.

The attitudes of the students in the two groups before and after the respective courses were measured on two scales, one called 'internationalism', favouring whole-hearted support of the U.N., sanctioning removal of tariff barriers to promote world trade etc., and another a short-item scale to measure the general faith of the respondent in the future of U.N. Pre and Post-test mean values and standard deviations of the measurements for the experimental and control groups are given in Table 1. The results reveal initial differences in the

TABLE 1—PRE AND POST-TEST MEANS AND STANDARD DEVIATIONS
(Source : Leslie and Berry, 1953)

Scale	Experimental <i>n</i> =30		Control <i>n</i> =25		' <i>t</i> '
	mean	s.d.	mean	s.d.	
Internationalism					
Pre-test	118.00	16.80	104.20	12.40	3.50*
Post-test	124.50	14.40	112.20	9.45	3.79*
' <i>t</i> '	4.11*		4.49*		
U.N.					
Pre-test	21.25	4.30	18.60	4.85	2.22*
Post-test	23.00	3.25	18.80	4.45	3.93*
	3.11*		0.06		

* denotes significance of the '*t*' statistic.

groups throwing out the possibility that, on the whole, the course on 'Social organisation in the changing world' attracted the liberally

oriented students to a greater extent than the course on 'Sociology of the family'. This by itself is not a serious drawback of the experiment as we are interested only in the changes in the scores after the course. The control group is not expected to record any significant change while if the experimental group did, the result can be attributed to the influence of the course.

Surprisingly, there is about the same amount of change on the 'international scale' for both the experimental and control groups, indicating that a greater force, far more powerful than the course of lectures on U.N. had been in operation. Two explanations were offered. First, when the course was on at the university, the U.N. week was celebrated in the campus thus creating an interest about the U.N. and its activities in both the groups of students. Second, the Pre-test was conducted at the time of the Korean conflict when the American press and radio were bitterly against U.N. and its member nations for alleged failure to support United States actions and policies. By the time of the post-test the U.N. forces were driving into North Korea and rumours of peace feelers were receiving much attention. The change in the 'internationalism' scale is a reflection of the changed climate of feeling and opinion and if at all there is any additional effect due to the course on U.N., the indication is in the opposite direction!

There is, however, a significant change on the U.N. scale in the experimental group and practically no change for the control group, providing some evidence that the U.N. course has slightly increased the general faith in the future of U.N. It is unfortunate that the external factors should influence the experimental results to such an extent that the effect on 'internationalism' (favouring whole hearted support of U.N. etc.) could not be studied. Again it is a poor consolation to discover that a superficial attitude like general faith in U.N. could be influenced by a full-fledged course on U.N. External forces operating as in this example are perhaps the greatest source of irritation in sociological experiments.

Another example where external forces could not be foreseen was an experiment on the effect of lighting on productivity, conducted by the Western Electric Company, U.S.A. The production rose as the amount of light was increased for an experimental group and so also the output of a control group in the same period although no increase in the amount of illumination was provided. Further when the level of illumination provided for the experimental group was decreased to a level below that furnished for the control group, output continued to rise, as did also that of the control group. Later researches to explain this phenomenon showed that the mere creation of two groups by the management, the reasons for which were unknown to the workers had set up a competition between them as to which group

would produce more and all other conditions of work in which the two groups differed had apparently no effect on production.

Perhaps a new method for increasing productivity was thus discovered, namely, of splitting the organization into two or three independent groups !

Since a projected experiment in sociology involves the use of human beings as 'guinea pigs' in a laboratory experiment, whose sole value is to provide information on the factors studied irrespective of the injury caused during experimentation, some ethical considerations stand in the way.

If we want to examine the efficacy of a proposed oral contraceptive by conducting a scientific experiment, it is necessary to create a certain number of 'placebo' cases and administering to the subjects dummy pills not containing the active therapeutic principle. The comparison of birth rates between the two groups, one treated with the oral contraceptive and the other not, would provide a valid answer to the problem under study. Indeed an unethical experiment forced on the society for the betterment of the society !

This experiment which appears apparently simple to carry out presents various difficulties in practice. Dr. D. A. Mitchison, who is currently engaged in a similar experiment to examine the therapeutic effects of Chemotherapy in the treatment of tuberculosis in the State of Madras finds, among other difficulties, (such as obtaining quantitative indicators of progress and standardisation of techniques of measurements, of reading the X-Ray photographs etc.) keeping track of the patients under treatment and ensuring that they take the medicine supplied as the most troublesome aspects of the experiment. The problem becomes more difficult when the experiment is extended over a long period of time, which is inevitably the cause in a study like the effect of contraceptives or the treatment of tuberculosis. Several cases disappear during the period of the experiment, some refusing to be under observation after some time, some due to mortality and others moving away to distant places. If all these happen on a selective basis influenced by the treatments under test, then the ultimate conclusions based on the remaining individuals will not be valid. This is a serious problem which should engage the attention of the experimenter. In a medical experiment like Dr. Mitchison's, it is possible to examine whether the patient is regularly taking the medicine or not by chemically testing the patient's urine periodically. But this may not be possible in all types of experiments and special precautions have to be taken by sending investigators periodically to the houses of the subjects and persuading them to take the medicine.

Cross-sectional Design. We are thus forced to depend largely on experiments which Nature is conducting on society. By an appropriate

sample enquiry, we could collect information at a given point of time, on a wide variety of factors and hope that the questions that may be posed are answerable with the available data. Often, the picture revealed is obscure but certain guidance may be obtained as to what further data have to be collected periodically or otherwise to gain some knowledge. The difficulties of interpretation involved in such studies are briefly reviewed here.

Let us consider the problem of association between family income and number of children born. The data collected have to be classified with respect to all relevant characteristics which affect the fertility of couples, such as age of parent at marriage, duration of the marriage upto the period of enquiry, caste, religious status etc., and examined under each category for any relationship between income (suitably defined over the period under investigation) and the number of children born. It is not generally possible to have sufficiently numerous observations under each category to establish statistical significance unless a very large sample is taken. Even then, there may be pitfalls in the conclusions drawn, for Nature has its own ways of experimenting with human beings and its vagaries are difficult to interpret. Consider the case of a wife with a low natural fertility and hence number of children and less commitments at home being able to accept employment, and thus increasing the family income. Again when the family size is small, the family has a greater mobility and may prefer to move out to places which afford better employment opportunities. In such cases, the family income over the period under investigation is somewhat influenced by the number of children a couple has and thus vitiate our comparisons because we are unable to distinguish between the cause and the effect.

Some investigators, in their zeal to present in their reports, an analysis of all the data collected by them, are not able to examine carefully all the relevant factors influencing their data. Even when pitfalls are apparent in their conclusions, forcibly displayed through graphs and tables, the results are announced without any qualification. Instances are also not rare where further probing on the available data although possible is not carried out under some excuse (e.g. lack of time) and tentative conclusions which support certain pet ideas are allowed to appear in print. While all such unscientific practices are to be deprecated, we have also to recognise certain situations in which we cannot help being deceived by Nature which, sometimes, in a very subtle way, hides facts from us. In such a case, it is only by examining a large number of supplementary questions that we can unravel the mysteries of Nature.

To give an example, consider the finding, in a recent survey, that within joint families, the fertility of the constituent individuals families is lower than that of single families, implying that the joint family

system is conducive to reducing children. The discovery, if it is true, is of great sociological significance; but how far it is due to a tendency for joint families to remain as such so long as their individual family sizes are small and to split when they have more children, is unknown. What has been thought of as a cause may really be the effect.

With historical data, there is a special difficulty in interpreting observed association between two economic or sociological variables. The observed association may not be due to inherent relationship between the two variables, but due to a general trend in the same direction for both the variables. For instance, the number of films produced in a state may be increasing from year to year, while due to improved health measures, the mortality rate may be decreasing over time. This induces a negative correlation between the two quantities. One doubts whether increased production of films would be recommended as a measure to reduce the mortality rates.

Madhava and Krishna Sastry³ found a positive association between absenteeism of industrial labour and cost of living index, over a period of time. Whether this is due to workers accepting more remunerative but temporary jobs elsewhere when prices are high or due to sickness caused by undernourishment or due to an increasing trend in both caused by other factors, is unknown. This is somewhat perplexing and a survey on causes of absenteeism may throw some light.

Instead of the projected experiment considered earlier, let us now consider a Nature's experiment and from its results examine the efficacy of an oral contraceptive. It is quite possible normally that only those women whose natural fertility is high adopt the oral contraceptive and those who are sterile or with low fertility naturally do not. If then a survey is carried out, and on the basis of the observed data, the birth rates of the two groups, namely, those who use the drug and those who do not, are compared, it might appear that the contraceptive has no effect or sometimes even negative effect. Nature's experiment has been defective from our point of view since the two groups under considerations are not strictly comparable in all other respects and therefore no valid conclusion about the efficiency of the drug could be drawn. Such a phenomenon has been observed by Poti in a family planning survey recently conducted in Calcutta by the Indian Statistical Institute.

Ex post facto design. In the case of cross-sectional studies, we met with certain difficulties in interpreting an observed association, such as between family income and fertility, as the result of a cause. The ex-post facto design described here holds some promise of discovering the cause and effect relationship. In this type of design a cross-sectional study is first undertaken to describe the 'present situation as an effect' of some previously acting causal factors and then an attempt is made to trace back over an interval of time to some assumed

causal complex of factors which began operating at an earlier date. For instance, the legislation on death duties enacted sometime, back, might be inducing a large number of parents, during their life-time, to transfer their property to the children. To examine this, we need to compare two figures; one, the percentage of parents who transferred property after the legislation, and another, the percentage before the legislation over a number of years. The difference between the two is interpreted as the effect of legislation. Such an approach is the essence of the *expost facto* design.

But the main difficulty is, as with historical data, the causal relationship may not be inherent but indirectly caused by unknown factors. There is also an additional difficulty of tracing back the information over a long period of time; if the interview method is adopted the quality of the information depends on the respondent's memory.

An interesting study of the effect of housing conditions on juvenile delinquency by Barer⁴ provides a good example. She considered 317 families who moved from a slum area to a well-developed locality in New Haven between 1940-44. From the court records, she was able to trace the delinquency rate applicable to their children during 1924-40, which was 3.18 per 100 children per year. The corresponding rate for 1940-1944 was 1.64. Since the chief difference lay in the housing conditions, it would be provisionally inferred that poor housing was a cause of juvenile delinquency. If there had been a general decline in juvenile delinquency the result obtained would have no significance. But actually, for the entire community in New Haven, there was an increase of 9.1 percent in total juvenile delinquency, for the years 1940 to 1941 (records were not available upto 1944) as compared with the period 1927 to 1940. This gives an additional strength to the assertion made. Doubtless there might have been other hidden causes which the author was unable to perceive. It would appear from all these illustrations that a good amount of caution is needed in interpreting sociological data and for reaching concrete conclusions extensive data on all the relevant aspects of the problem are needed.

USE OF INTERPENETRATING NET WORK OF SAMPLES IN SOCIOLOGICAL SURVEYS

The need for standardization of measurement and assessing the precision of the instruments involved has long been recognised in physical sciences. How far do repeated observations on an object by the same observer and with the same instrument agree? In what sense two observers using the same instrument or two instruments designed for taking the same measurement are said to agree or dis-

agree? These questions, which are equally relevant to investigations in the less precise sciences like behavioural sciences, seem to be generally overlooked. It is worth examining how these questions are particularly important in sociological investigations and the methods devised for studying them.

Suppose we want to ascertain the attitude of the people of Banaras towards the entry of untouchables into the Vishwanath temple. The quantity we have to measure would be the proportion of the population strongly opposed to the entry. The method adopted is that of a sample survey in which some individuals are randomly selected and their opinion obtained by the interview method (the measuring instrument employed). One element of error in the estimated proportion is due to the fact that it is based on a sample and not a complete count. This is called sampling error and an upper probability limit to this error can be computed from the observations themselves. In fact, the advantage of the sampling technique is that fairly reliable estimates can be obtained economically and expeditiously as it involves ascertaining the information from only a relatively small proportion of individuals.

There is another source of error due to the investigator, depending on the extent to which he interjects his own ideas on temple entry into the respondent consciously or unconsciously during the interview or, when the investigator is a paid employee, the extent to which he fudges his records without actually visiting the respondents. In such cases, differences between investigators exist and a knowledge of the magnitude of these differences would provide us with a better logical basis to infer about the quantity under determination. An estimate based on the observations collected by an investigator, say A, together with the magnitude of the sampling error would not tell us the whole story if there is no indication of the extent to which the estimate will differ if another investigator B is used. It is, therefore, a logical necessity that the sample survey should be designed as to provide independent estimates of the same quantity by different investigators.

This principle of obtaining parallel estimates using different investigators and more generally using different groups of investigators of different methods of investigation as a means of examining the validity of the survey was first enunciated by Mahalanobis⁵ and successfully used in a series of sample surveys to estimate acreage under jute in Bengal during the years 1937-1947. The device by which this is achieved known as the method of half samples or the interpenetrating net-work of samples, has now come to be recognised as an essential requirement of any large-scale sample survey.

It is educative to study some illustrations to see how the interpenetrating network of samples can be used in a variety of ways

and the revealing information it brings out. As there are not many sociometric surveys conducted in India using this method, I am choosing some illustrations from other surveys also. But the main purpose is to stress the importance of this method and to recommend its use, specially in sociological surveys where the type of information sought is of a complicated nature.

I need not emphasise the importance of training the investigators on the concepts and definitions involved in the enquiry. They should be acquainted with the special difficulties in obtaining certain types of information and how to overcome them. All this is necessary to reduce the investigator differences to a large extent. But there are various other causes which cannot be foreseen or eliminated.

Interlocking samples for direct check on validity of method. An investigator employed in a survey for estimation of crop average, should be able to identify a field with a certain given register number in a village and record what proportions of the field are under different crops. As a test case, two trained investigators A and B were asked to examine independently 332 fields in a village and note the name of the crop or mixture of crops growing on each individual field. Investigator B was asked to visit the village a fortnight later so that he had no chance of meeting A. Table 2 gives the distribution of the 332 fields classified according to crops reported by the two investigators.

TABLE 2—COMPARISON OF DUPLICATE COMPLETE ENUMERATION IN A VILLAGE IN BENGAL

(Source : Mahalanobis, 1946)

A-survey, August 14, 1943	B-survey, September 2, 1943				Total
	Jute	Aman	Jute-aman	No crop	
Jute	4	15	4	3	26
Aus	4	12	1	4	21
Jute-aus	17	66	2	9	94
Jute-aus-aman	—	2	—	—	2
Jute-aman	1	—	—	—	1
No crop	37	45	4	102	188
Total	63	140	11	118	332

A glance at Table 2 shows that the situation is alarming. Out of the 63 fields with jute on September 2, only 4 seemed to be under jute a fortnight earlier, 4 under aus, 17 under jute-aus, etc. The distribution of 140 fields with Aman as reported by B causes a greater surprise. The discrepancy cannot obviously be explained by a time lag of 14 days. One loses confidence in the survey technique if the measuring instrument is as erratic as that revealed by the comparison made in Table 1. The only hope is that a more intensive training in identi-

fication of fields and crops would help in reducing errors. If some statisticians are critical about the method of interpenetrating network of samples and think it is waste of money to collect data in such a way that comparisons between investigators or groups of investigators are possible, it only shows a weakness on their part to be blind to realities.

In this particular experiment the same unit could be examined by two investigators and this is called the interlocking method. Such an interlocking method was used by Poti⁷ in a health survey of Calcutta population, to examine whether medically qualified interviewers provide better information than those with a general education only. He could compare the two types of results with independent and more or less objective diagnosis made in well-known hospitals. He comes to the general conclusion that when the diseases are not very finely grouped, both types of interviewers are equally efficient.

Interpenetrating samples to compare types of investigators. The interlocking method is not possible if the individuals could be contacted only once. Comparisons are possible in this situation by allotting to each investigator a random subset of individuals to be covered.

In a recent survey of mental health conducted in the U.S.A. (Benny, Riesman and Star)⁸, sexual habits as a possible cause of mental disturbance was brought to the attention of every respondent as one item in a 12-item check list. The respondent had the option to leave the item if he did not want to mention sex. Fiftyeight percent of the respondents listed sex habits as a possible cause of mental disturbance. Table 3 gives the percentage of responses obtained from each sex and age group of the respondents related to the sex and age of the interviewers.

TABLE 3—PERCENTAGE OF SEX HABIT RESPONSES BY SEX AND AGE OF REPENDENT AND INTERVIEWER
(Source : Benny, Riesman and Star, 1956)

Interviewer	Respondent					All respondents
	Male		Female			
	40 or less	over 40	40 or less	over 40		
male (40 or less	44	44	54	51	48	
(over 40	60	46	48	55	53	
female (40 or less	60	55	53	56	56	
(over 40	61	58	63	65	61	

It is seen that the female interviewers obtain about 9% more responses and older interviewers obtain 5% more than the younger ones.

In a survey of consumer expenditure conducted in Calcutta some years ago two types of investigators, one whole-time and the other

part-time, were employed. At the beginning of the survey, it was felt that the whole-time employees would do a better job than the part-time employees and to verify this, it was decided to have two independent samples of households to be assigned to the two types of investigators. Indeed, there was some difference in the two subsample estimates of per capita consumption of rice creating an unhappy situation since at first, no clue could be found as to which estimate is nearer the truth. Incidentally, certain other characteristics of the households were studied by subsamples, for instance the distribution of household family size in the two samples, which is given in Table 4.

TABLE 4—DISTRIBUTION OF FAMILY SIZE BY TYPES OF INVESTIGATORS

family size	Type of investigators	
	part-time	whole-time
0	12	15
1	120	80
2	180	170
3	200	215
More than 4	230	225
Total	742	705

To each type of investigators 750 households were assigned and it may be seen from Table 4 that there was higher non-response and a considerable shortage in the frequency of one member households in the case of whole-time investigators. The whole discrepancy seems to be confined to the one-member family size and to some extent to the two-member family size. Why did the whole-time investigator miss a large number of one-member household? The reason is not difficult to seek. The whole-time investigator had his working hours between 10 a.m. and 5 p.m. This is exactly the period of the day when the head of the household goes to work and naturally the one-number houses are expected to be kept locked. On the other hand, the part-time investigator has to contact the families in the morning or in the evening outside his as well as their office hours, when there is greater chance of contacting individuals of the one and two-member families. This finding was contrary to our expectation that the whole-time workers would do better and I felt somewhat gratified at this because some of the part-time investigators were students for whom I had refused to close the classes during the survey.

A revised analysis enabled us to obtain an estimate correcting for the bias caused by the whole-time investigators in missing a large number of one-member households. First, specific rice consumption rates with respect to each family sizes were obtained. Second, the

relative frequencies of different family sizes were estimated by disregarding the frequency of one-member households supplied by the whole-time investigator. The overall rate was obtained by taking a weighted average of the specific rates using the estimated relative frequencies as weights. This is incidentally an example where the discrepancy observed could guide us to the proper method of estimation without having the necessity to collect fresh observations on the missing units of the sample.

But, in general, it may be not so easy to obtain a satisfactory explanation of the differences and find an appropriate procedure of estimation. On the basis of the internal evidence supplied by the figures, it is not possible to say which of the subsample estimates are likely to contain large errors. In such cases, one course open to us is to compute a pooled estimate and assign to it a standard error derived from the differences of the subsample estimates.

Table 5 gives percentage of persons 'listening often' to different types of music as estimated from three independent samples in a 'Radio Program Preference Survey' conducted in April-May 1941 by the Indian Statistical Institute.

TABLE 5—PERCENTAGE OF PERSONS 'LISTENING OFTEN' TO DIFFERENT TYPES OF MUSIC

(Source : Mahalanobis, 1946, Ref. No. 6)

Type of music	Subsample estimates			Total n=803
	A n=287	B n=268	C n=248	
Modern Bengali	48.8	39.6	49.6	46.0±3.38
Tagore	39.4	35.1	46.8	40.4±3.42
Plays	43.6	41.4	42.3	42.4±0.67
Instrumental	42.2	40.7	43.1	42.0±0.70
Devotional	31.0	28.8	46.8	35.5±5.67
Classical	26.1	20.1	23.4	23.2±1.74

Easy sample was entrusted to a group of interviewers and not to individual investigators. In such a case, the 'group bias' is expected to be of a smaller order of magnitude than the individual differences. What is surprising in the above data is that estimates under subsamples B are consistently lower than those under A and C. Is it likely that the interviewers in group had given the respondents a different concept of 'listening often' from those given by interviewers in groups A and C? Problems of this nature are bound to arise in attitude surveys and the knowledge gained in one survey as to the likely sources of error will be extremely useful in planning subsequent surveys.

Other uses. Replicated subsamples have been employed to detect discrepancies in field studies, to provide controls at the stage of statistical analysis and to obtain valid estimates of standard error. For details reference may be made to papers by Mahalanobis 5, 6.

SOCIOMETRIC STUDIES AND THE SECOND FIVE YEAR PLAN

The need for interdisciplinary team-work to resolve the complex problems of life and the urgency for some projects to be undertaken by them has already been stressed. Its relevance to some particular problems concerning the approach to and targets of the Second Five Year Plan may now be examined. I believe that the investigations and the results reported by statisticians are merely fact-oriented, perhaps rightly so, but a slightly better understanding of the human problem is essential for any plan of action and is possible if the sociological and psychological interpretation of figures is accepted as one of the terms of reference. It is for this reason that I have considered the statistical reports on current problems only in the following illustrations which are meant to indicate what further inquiries are desirable.

Unemployment. To wipe out unemployment is one of our main targets. A plan for this requires a knowledge of the present position of unemployment and future trends, and an examination of the possible measures to be taken to provide jobs for the unemployed over the course of the next five to ten years. At the instance of the Planning Commission, a number of sample surveys were conducted to ascertain the volume and nature of unemployment and under-employment in urban areas. Extensive statistics are now available for some cities, other urban and rural areas in the reports^{9,10} of the National Sample Survey. Table 6 gives the number of jobs to be provided if unemployment has to be removed by the end of the Second Five Year Plan.

TABLE 6. FIGURES OF UNEMPLOYMENT IN MILLIONS
(Source : Second Five Year Plan, 1956)

	Urban areas	Rural areas	Total
New entrants to labour force	3.8	6.2	10.0
Backlog unemployed	2.5	2.8	5.3
Total	6.3	9.0	15.3

Besides the above magnitudes which are essential in determining the overall size of the plan (by the amount of investments) these

surveys provide other quantitative estimates of the employed and the unemployed by age distribution, educational status, occupation, migration and a few other factors which should be useful in working out other results.

It is generally said that the unemployment of the educated presents a serious problem. The NSS statistics show the exact magnitude of this problem. Table 7 gives the percentages of gainfully occupied and unoccupied persons by general education for Calcutta and urban India (excluding the cities, Bombay, Delhi and Madras and towns with less than 50,000 population).

TABLE 7—PERCENTAGES OF GAINFULLY OCCUPIED AND UNEMPLOYED PERSONS BY LITERARY LEVEL
(Source : NSS Report, ref. No. 10)

	Calcutta city			Urban India		
	gainfully occupied	unemployed	total	gainfully occupied	unemployed	total
1. Illiterate	92.2	7.8	100	96.5	3.5	100
2. Literate below						
Matric	79.4	20.6	100	89.9	10.1	100
3. Matric	73.4	26.5	100	84.4	15.6	100
4. Intermediate	79.0	21.0	100	84.9	15.1	100
5. Graduate and above	90.5	9.5	100	90.9	9.1	100
	82.0	18.0	100	92.6	7.4	100

It appears that illiterates have a greater chance of being employed than those who are educated. Obviously there do not seem to be enough jobs of the kind which the educated persons prefer or are trained to do. These statistics, as mere descriptions of the existing nature of things, do not allow us to feel the real pulse of the problem. No attempt was made in these studies to collect or tabulate data of sociological significance such as the attitudes of the persons towards different types of jobs, willingness to work in rural areas, inability to do certain types of work, precise reasons for migration to cities etc. All this information is necessary in examining which way the solution lies or whether certain developmental schemes suggested would effectively solve the unemployment problem or whether our educational system needs of change. Here is a field for fruitful collaboration between the social scientists and the statisticians to solve a problem described as 'a curse, a tragedy, a challenge to society'; the sooner it is removed the better for the society.

There is, however, one pilot study conducted by Majumdar¹¹ on the attitude of persons educated upto the Masters level from the university of Lucknow. Table 8 shows the kind of work desired

by the students after leaving the university and their success in obtaining it.

TABLE 8. KIND OF WORK DESIRED AFTER LEAVING THE UNIVERSITY AND SUCCESS IN OBTAINING IT
(Source : Majumdar and Anand, 1957 ref. No. 11)

Kind of work	Percent obtaining such work	Percent not obtaining such work	Percent not answering about success	Number desiring such work	Percentage
Government	32	58	10	146	44
Teaching	47	36	17	83	25
Own profession	31	50	19	32	10
Service in a firm	18	71	12	17	5
Business	47	42	11	19	6
Farms	50	33	17	6	2
Others	43	43	14	28	0
				331	100

It is seen 'that Government service is the goal most aspired to, teaching was a poor second, and only a scattered few wanted to enter business or farming'. Obviously they prefer security to any other reason in desiring to get a job.

On the important problem of persuading university educated persons to go to rural areas, Majumdar's study gave some information. Out of the 110 respondents who came from rural areas to receive education at the university about 65% were unwilling to go back to rural areas when they finished their education. There were altogether 83 respondents belonging to both urban and rural areas who expressed unwillingness to go to rural areas for the reasons mentioned in Table 9.

TABLE 9. FREQUENCY AND PERCENTAGE OF RESPONDENTS BY REASON OF UNWILLINGNESS TO GO TO RURAL AREAS
(Source : Majumdar and Anand, 1957, ref. No. 11)

Reason	frequency	percentage
Lack of proper employment there	53	64
Inadequate social amenities	18	22
You like city life	8	10
Home town life is restricted	2	2
Other reasons	2	2
	83	100

When the respondents were asked whether they would be willing to go to the villages if jobs similar to what they were holding were offered only 61% answered 'yes'. About 30% were definitely unwilling mainly because of 'no opportunities for further progress'. More of such studies would be useful.

Wastage and stagnation in primary education. It is generally known that some children leave the school within the first three years of schooling, which are considered insufficient for producing lasting literacy. The expenditure on their training is completely wasted and so also the additional expenditure due to children failing and continuing in the same class. Quantitative estimates of these phenomena known as 'wastage' and 'stagnation' are therefore of extreme importance. Dandekar¹² was the first to obtain such estimates on a sound statistical basis and his findings in the case of local board schools in the Satara district of Bombay State are summarised in Table 10.

TABLE 10. WASTAGE AND NUMBER ULTIMATELY PASSING DURING THE FIRST 4 YEARS FOR EVERY 10,000 CHILDREN ENTERING THE INFANT CLASS
(Source : Dandekar, 1955, ref. No. 12)

Class	Number entering	Wastage cases		Number ultimately passing		
		Number leaving	years wasted	years spent in school		
				Number	total	average
Infant	10,000	1932	4645	8068	13753	1.70
1st standard	8068	706	2963	7362	21821	2.96
2nd standard	7362	504	2865	6858	20951	4.24
3rd standard	6858	470	3066	6388	35389	5.54
Total		3612	13539			

The total student years spent by 10,000 upto the 3rd standard is 48,928 out of which 13,539 (about 28%) are completely wasted. The number ultimately passing the 3rd standard is 6388 which is about 64% and on the average they take 5.5 years. About 36% leave the school before they complete the 3rd standard. If there is no stagnation the total number of student years upto passing the 3rd standard is 4×6388 . The difference of $(35389 - 4 \times 6388) = 9837$ student years have been wasted due to failures and therefore provides the magnitude of stagnation. The survey was extremely useful in the quantities it provided, but was not comprehensive enough to examine the underlying socio-economic causes of wastage and stagnation. Some evidence is, however, available that reasons are economic on one hand, forcing the children to discontinue and seek employment or help in the family enterprise, and mental backwardness of the student on the other hand.

It would be of interest to carry out such studies in other states and also extend the scope of enquiry to courses at the university level.

Social impacts of industrialization. This is an area which needs immediate exploration since large scale industrial development plans

are under way. A cross-sectional study of the society in all conceivable aspects at the present time is necessary if precise estimates of changes after industrialisation are desired. A few of the investigations worth undertaking are considered below.

Industrial Morale. The statistics of worker-days lost during recent years give an alarming picture which can be seen from Table 11 and unless drastic steps are taken to improve the relationship between the workers and management our plan targets may be badly affected. Whether we measure it in terms of man-days lost to the country (column 5) or in terms of the ratio of man-days lost to workers employed, it is clearly seen from Table 11 that while the First Five Year Plan raised industrial morale considerably and was able to keep it up, as we entered the Second Five Year Plan period it is rapidly declining.

Studies relating to morale of industrial workers, the role played by union, the areas of conflict between unions and the management are important specially in view of the democratic policy of the government. In the Planning Commission report of the First Five Year Plan (1952) it is said, 'The workers' right to association, organisation and collective bargaining is to be accepted without reservation as the fundamental basis of mutual relationship. The attitude to trade unions should not be just a matter of toleration. They should be welcomed and helped to function as part and parcel of the industrial system'. A survey undertaken by Ganguly¹³ to study morale problem has confirmed some of the general beliefs and more studies of this nature will help the government in the formulation of the industrial policies.

TABLE 11. INDUSTRIAL DISPUTES RESULTING IN WORKSTOPPAGES INVOLVING 10 WORKERS OR MORE
(Sources : Indian Labour Gazette and Year Book)

Year	Number of factories submitting returns	Number of disputes during a part or whole of a period	Number of workers involved directly or indirectly	Total Number of man-days lost	Average workers employed per day
(1)	(2)	(3)	(4)	(5)	(6)
1947	14023	1911	1,840784	16562666	2274689
1948	15901	1259	1,059120	7837173	2360201
1949	19801	920	685457	6600595	2433966
1950	24620	814	719833	12806704	2504399
1951	24007	1071	691321	3818928	2536544
1952	24305	963	809242	3336961	2440169
1953	24022	772	466607	3382608	2528026
1954	26538	840	477138	3372630	2589757
1955	26978	1166	527767	5697848	2690403
1956	—	1203	715130	6992040	—

TABLE 12—PRINCIPAL OCCUPATION OF MIGRANT HOUSEHOLDS IN INDIA COMPARED WITH THEIR PREVIOUS OCCUPATION IN PAKISTAN
Source: Pitambar Pant, National Sample Survey, No. 6 (1954)

serial number	principal occupation of migrant households in Pakistan	principal occupations of migrant households in India											percentage
		retail and whole- sale traders	contractors, brokers, etc.	artisans	administrative, executive, clerical	industrial workers	labourers	other occupations	rentiers, pensioners	living on doles	unemployed	all occupations	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	retail and wholesale traders	28	5	32	23	32	64	16	—	32	8	240	50.2
2	contractors, brokers etc.	—	—	2	2	1	6	2	—	4	—	17	3.6
3	artisans	—	—	11	5	6	8	4	—	3	2	39	8.2
4	administrative executive, clerical	2	—	—	8	4	3	3	—	1	5	26	5.4
5	industrial workers	—	—	1	6	8	1	1	—	3	—	20	4.2
6	labourers	—	—	—	—	1	3	—	—	1	—	5	1.0
7	other occupations	4	—	2	4	6	9	20	—	9	4	58	12.1
8	rentiers, pensioners	3	2	4	7	5	13	3	—	12	4	53	11.1
9	unemployed	1	—	—	3	2	1	2	—	8	3	20	4.2
10	all occupations	38	7	52	58	65	108	51	—	73	26	478	100.0
11	percentages	8.0	1.5	10.9	12.1	13.6	22.6	10.6	—	15.3	5.4	100.0	
number of households surveyed = 500													total number of households = 5374

Social Mobility. Recent studies in South India suggest that a rapid change is taking place in social mobility, cutting across the barriers imposed by caste and religion. A quantitative study of a significant contribution on the methodological side is due to Mukherjee¹⁴. Actual statistics of mobility are not, however, extensively available.

One important factor to be considered in the study of social mobility is the economic development of the country producing changes in the job opportunities from time to time. If, for instance, occupation in a certain sector of economy becomes less remunerative than that in a certain other sector which shows signs of expansion, there will be a tendency on the part of the parents to equip their sons for the new occupation and to change their own, if possible, within their life time. Any index of social mobility must take into account the changes in job opportunities. In this context, we may enquire what happens in the extreme situation when a community with a certain occupational distribution of its individuals is suddenly transferred to an economy with a different type of job opportunities (distribution of occupations with respect to economic needs). How will they adjust themselves to the new situation? One experiment like this would throw a wealth of information in understanding social mobility and obtaining probabilities for mean of different occupations to move to other occupations within a closed economic system.

Opportunities to examine such problems were open to us immediately after partition when several thousands of families were uprooted from their family occupation in Pakistan and forced to migrate to India and search for new occupations. But very little advantage seems to have been taken by statisticians and sociologists of this great opportunity which occurs very rarely in the history of a nation. We have great lessons to learn from the Japanese geneticists, who started experiments in the courtyards of their shattered houses, disregarding the grim tragedy that had befallen their families, to study the effect of radiation on plants, within a day or two after the atom bombs were dropped! It was reported that over 300 papers on this subject were published by the Japanese geneticists within a short period of time.

One of the relatively few studies of such occupational changes undertaken by the NSS is contained in the report on 'Survey of Faridabad Township' by Pant¹⁵. Faridabad is one of the townships created by the Government of India to settle the refugees from NWFP. Table 12, which is self-explanatory, gives the occupational shifts that have taken place consistent with the job opportunities in the new township. As may be observed, there has been a thorough shake-up in the principal occupation of the households. Most of the households were forced to take up occupations of a lower status than what they

were holding before. The class which seems to have the greatest aversion to accept jobs below their status consists of those who held white collar jobs (administrative, executive and clerical) while the large number of retail and wholesale traders have taken advantage of whatever jobs were open to them. It is a pity that insufficiency of the data does not allow us to make any refined analysis of the situation. A survey like this covering the other settlements would have provided a valuable record.

Population Studies. Estimation of the future size of the population is fundamental in economic planning. The past trend is not a reliable guide especially when new forces are being constantly introduced to influence fertility. The rapid industrial development envisaged in the Second Five Year Plan is bound to have considerable effect on the trend of fertility. Recognising the need to check the current rate of population increase, the Government is sponsoring family planning on a country-wide basis. A fertile field is open to the demographers, sociologists and statisticians to make periodical investigations, keep track of the changes and report when any action is necessary.

Collection of objective facts about the present reproductive performance of the population is not sufficient to correctly assess the future population. A number of studies based on such investigations are now available (see references No. 16, 17). What is perhaps urgently needed is a survey of the present attitudes of the people towards age at marriage, family size, use of contraceptives, all of which influence the future fertility. Studies of this nature have been undertaken by Chandrasekhar¹⁸ under the sponsorship of the United Nations, and by others at the Indian Statistical Institute.

The data collected cannot, however, tell us to what extent these attitudes influence fertility. Unless some quantitative estimates are obtained, they cannot be used as predictors of future trends. I suppose efforts will be made to assess the relation between attitudes now ascertained and the actual fertility performance of the families some years hence. It is of some interest to quote the results of a recent survey conducted in the USA on the influence of attitudes. The variables considered are : (i) original preference for family size, (ii) actual number of children born during 20 years from the date of preference survey, (iii) recalled preference (answer to a question like how many did you prefer to have 20 years ago) and (iv) retrospective preference ('if you could have had your choice, how large a family would you have had during your marriage?'). Table 13 gives the correlations indicating the strength of association between the pairs of variables considered.

It is seen that the recalled and retrospective preferences are influenced by the actual family size and this influence persists even

TABLE 13. CORRELATIONS* AMONG THE FOUR VARIABLES RELATING TO FAMILY SIZE (NUMBER OF CHILDREN)
(Source : Westoff, Mishler and Kelly, 1957 ref. No. 19)

	Original preference	Number of children	recalled preference	retrospective preference
Original preference	—	.26	.42	.34
Number of children	.27	—	.55	.50
Recalled preference	.48	.45	—	.68
Retrospective preference	.50	.55	.71	—

* entries above the diagonal are for males and below the diagonal for females.

when original preference is held constant. This is, perhaps, natural. The correlation between original preference and number of children born is somewhat low, but indicates a degree of association which we shall take note of. The magnitude of this correlation was somewhat higher (.30 for males and .45 for females) in the case of families who used contraceptives regularly except when they wished to have children and somewhat lower (.19 for males and .12 for females, found not to differ significantly from zero) in the case of others. We do not know what is characteristic of the Indian population. There may be a stronger association between original preference and number of children. If we mean what we say and what we say is out of a firm conviction, the future before us, indeed, is very bright.

TOWARDS A SCIENTIFIC SOCIETY

The aim of all human endeavours is the continued improvement of the mental and material welfare of society. For the achievement of this, it is necessary to set up indicators of progress to assess changes that are taking place and to guide us in the decisions we take. The concept of national income as an indicator of economic development subsumes all the material aspects of the society. One of the targets of the Second Five Year Plan is to double the per capita national income by the end of 20 years.²⁴ Our planners are finding ways and means of achieving this.

But no suitable indicators of mental progress of a society are available. There may be several conceptual difficulties in defining such indicators. We are aware of the various stages of confusion and controversy associated with the concept of National Income (N.I.) as an indicator of economic progress. Controversy based on political ideologies still exists as to what sectors of national economy should be included in the computation of N.I. The estimation and measurement of mental progress of a society or a nation offer far greater difficulties which

may remain, for a long time to come, a challenge to human intellect. Some of the problems involved are briefly considered here.

Mental traits can be broadly grouped under the two categories, intellectual and temperamental. Corresponding to these two types we may introduce two indicators or criteria, one for Intellectual Attainments (I.A.) and another for Social Concord (S.C.) Aggregates of these built up for the entire nation will be called National Intellectual Attainment (N.I.A.) and National Social Concord (N.S.C.).

The main and, perhaps, the sole component of I.A. is the bulk of contributions to science, art and literature by the individuals of a society in a given period of time. Stated as such, without taking into account intellectual potentialities, it is easier to evolve an objective definition of N.I.A., but it is only fair to apply a correction for opportunities denied to individuals, in the current economic system, for the full application of their talents. This correction becomes negligible when economic planners succeed in giving a high standard of living and equal opportunities to all individuals.

For the computation of S.C., one might include the volume of conflicts between individuals and between groups (litigations, disputes, strikes, riots, divorces etc.), social evils (uncivic actions, criminal offences etc.), psychosomatic conditions (bodily disorders caused by emotional imbalance, suicides, etc.) and psychoneurotic conditions.

TABLE 14. INTELLIGENCE OF PARENTS AND CHILDREN CLASSIFIED ACCORDING TO OCCUPATION OF THE PARENT
(Source : Cyril Burt, 1946, Ref. No. 20)

Occupational category of the parent	Average intelligence quotient	
	Children	Adults
1. Higher professional : administrative	120.3	153.2
2. Lower professional : technical executive	114.6	132.4
3. Highly skilled : clerical	109.7	117.1
4. Skilled	104.5	108.6
5. Semi-skilled	98.2	97.5
6. Unskilled	92.0	86.8
7. Casual	89.1	81.6
8. Institutional	67.2	57.3

Till the various problems involved in their computation are patiently solved, we may try to measure these levels with the help of suitably constructed intelligence and temperamental scales. It is an immediate necessity to undertake testing on a large scale to find variations between regions, occupations, caste and religious groups etc. With rapid industrialization, and within about the next ten years, many of these distinctions and classes are likely to break down.

To obtain an idea of variations that can exist, we may consider a study conducted in Great Britain on the association between I.Q. intelligence quotient as measured by intelligence tests and factors like occupational status, fertility of the family etc. Table 14 confirms a general belief that children of parents belonging to higher-status occupations are more intelligent than the others. Table 15 shows a decreasing trend in intelligence with increasing fertility.

The figures in Table 15 lead to an apparent conclusion that the general intelligence of the nation as measured by I.Q. is decreasing from generation to generation on the assumption that parents with a low I.Q. produce children with less intelligence and in proportionately larger numbers. Penrose and Haldane assure us that the situation is not alarming on this account, and, there need not be a reduction in the supply of intelligent persons from generation to generation. Penrose also believes that the negative association between parity of the child and I.Q. found in England will increase the average intelligence, once uniform family limitation becomes a social phenomenon.

TABLE 15. AVERAGE I.Q. OF CHILDREN CLASSIFIED
ACCORDING TO FAMILY SIZE (NUMBER OF
SIBS IN THE FAMILY)
(Source : Thomson, 1946, ref. No. 21)

Number in family	I.Q.	Number of families in sample
1	106.2	115
2	105.4	212
3	102.3	185
4	101.5	152
5	99.6	127
6	96.5	103
7	93.8	88
> 7	95.8	102

What are the prospects of Eugenics in India? If measures to double the per capita national income after 20 years can be formulated, are we in a position to introduce a eugenic reform which increases the intellectual attainments by, say, 5 points within the next generation. The present state of knowledge of human genetics is, according to Haldane, very meagre to justify any method leading to selective breeding for improvement of intelligence, although some mild measures not infringing too much on human liberty may be useful. Even if we had some positive knowledge, a eugenic reform is a dangerous game because it involves the 'choice of individuals whom we might hope the posterity will resemble'. I suppose there will be a committee advising the government on this subject. This committee should consist of intelligent persons who shall be selected by individuals

certified to be intelligent. This reminds me of a suggestion made by a Danish Psychiatrist, Dr. Reiter, to the second annual assembly of the World Federation for Mental Health that top-ranking government officials in all countries ought to have their heads examined by boards consisting of a psychiatrist, a psychologist, a sociologist and a physician. Dr. Reiter, however, admitted that the examining boards should be examined first. The process, if followed to its logical extreme, will perhaps end up with God. In God we trust !

REFERENCES

- 1 F. S. Chapin, (1947). *Experimental designs in sociological research*, Harper and Brothers, New York.
- 2 Gerald R. Leslie and Brewton Berry, (1953). Note on attitudes toward the United Nations—an experiment in attitude changes, *Social forces*, 32, 87.
- 3 K. B. Madhava and K. V. Krishna Sastry, (1940). A further study of statistics of 'absenteeism' in Indian labour, *Sankhya* 5, 215.
- 4 Naomi Barer, (1945). Delinquency before, after admission to New Haven Housing development, *Journal of Housing*.
- 5 P. C. Mahalanobis, (1945). On large scale sample surveys, *Philos. Trans. Roy. Soc.* 231, No. 584, 329.
- 6 — (1946). Recent experiments in statistical sampling in the Indian Statistical Institute, *J.R.S.S.* 326.
- 7 S. J. Poti, M. V. Raman, S. Biswas and B. Chakravartty, (1957). A report on Pilot health survey, West Bengal, 1955.
- 8 Mark Benny, David Riesman and Shirley A. Star (1956). Age and sex in the interview. *A. Jour. Sociology*, LXII, 143.
- 9 N.S.S. No. 8. Report on preliminary survey of urban unemployment, September 1953.
- 10 — Report on sample survey of unemployment in Calcutta : 1953.
- 11 D. N. Majumdar and S. K. Anand, (1957). Unemployment among the university educated : A pilot enquiry in India. Massachusetts Institute of Technology publication.
- 12 V. M. Dandekar, (1955). Report on investigation into wastage and stagnation in primary education in Satara district. Publication No. 32, Gokhale Institute of Politics and Economics.
- 13 H. C. Ganguly, (1955). A study of the relation of union membership to industrial morale. D. Litt thesis submitted to the Calcutta University.
- 14 Ramakrishna Mukherji, (1953). *Social mobility in Britain*, edited by D. V. Glass, Routledge and Kegan Paul Ltd., London.
- 15 Pitambar Pant, (1954). Survey of Faridabad Township, NSS No. 6, Government of India.
- 16 V. M. Dandekar and K. Dandekar, (1953). Survey of fertility and mortality in Poona district. Publication No. 27, Gokhale Institute of Politics and Economics.
- 17 A. Dasgupta, R. Som, M. Majumdar and S. Mitra, (1955). Couple fertility, NSS No. 7, Government of India Publication.
- 18 C. Chandrasekar, (1955). Fertility survey in Mysore State, India. *Current Research in Human Fertility*, 11.
- 19 C. F. Westoff, E. G. Mishler and E. L. Kelly, (1957). Preferences in size of family and eventual fertility twenty years after. *Am. Jour. Sociology*, LXII, 491.
- 20 Cyril Burt, (1946). *Intelligence and fertility*. Published by the Eugenics Society, London.
- 21 Godfrey Thomson, (1946). The trend of national intelligence. The Galton lecture.
- 22 L. I. Penrose, (1946) (in a discussion on) The trend of national intelligence by G. Thomson. Published by the Eugenics Society, London.
- 23 J. B. S. Haldane, (1955). The prospects of Eugenics. First Woodhull lecture.
- 24 P. C. Mahalanobis, (1955). Draft frame of the second Five Year Plan.

THE SURVIVAL OF HINDU INSTITUTIONS IN AN ALIEN ENVIRONMENT

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The social organization of India is highly complex and, at least in regard to one of its institutions, it is unique. Two institutions are primary in giving Indian society its distinctiveness—the caste system and the traditional or extended joint family system. The extended family is an institution found in many other parts of the world, particularly throughout Asia. However, the hierarchial positioning of individuals in hereditary, socio-religious groups, as in the Hindu caste system is not so widespread. And in the pervasiveness with which this social institution affects the behavior of the individual, it makes Indian society differ from almost all other societies in the world. Indeed, the term caste has come to be used primarily in reference to the social groups of India and when the term is used in reference to groups in other cultures it is because they are similar in some ways to those of the castes of India.

Probably the only other social institution in India which affects the individual as much as caste is the family system. In the classic form of this family type a number of married couples and their children live together in the same household, all the men being related by blood (Mandelbaum 1948 : 123). Money and property are held in common, usually with the senior male as the manager of the family funds. Religious rites, particularly the *sraddha* ceremony, given for the souls of the ancestral dead, are an important family function. An important duty of the family is to select spouses for its younger members. Because marriage is principally a relationship between families and only secondarily a relationship between the individuals being married, the choice of a spouse and the marriage arrangements are taken care of by family elders. And although caste and family are inter-related in many ways in India, it is particularly in the institution of marriage that these two systems appear to be inseparable. Though there are a number of restrictions in the choice of a marital partner, the one, most strictly adhered to, is that the individual must not marry someone from another caste.

Many aspects of Indian culture are undergoing considerable change, and by no means the least important are the social institutions. A great part of the change that is taking place today in India is, either directly or indirectly, a result of the impact of western ideas and institutions. Culture change in the Indian village, and to a lesser extent in the urban centers, of India has attracted a considerable

number of social scientists in recent years (Lewis 1958; Marriott 1955; Cohn 1955; Niehoff 1957).

The thesis of this paper is that there is another very fruitful source of data on culture change in Indian institutions beyond the continental limits of India. Such sources are to be found in the enclaves of Indians who have migrated from India, particularly during the past hundred years, to colonies of the British Union. These peoples have settled in countries, as minorities usually, where the impact of non-Indian, particularly British, institutions has been much greater than it has been in India itself. No longer did Indians have the advantage of numbers over their rulers as they have had in India. Also in these countries where Indians migrated there has almost always been a subject people of alien culture who were numerically superior to the Indians. In South Africa, Trinidad, British Guinea these were Negroes, in Fiji, native Figians, in Malaya indigenous Malaysians. It would be expected that culture change would consequently be much greater among these migrant Indians, but more important than the greater general change would be the possibility of differential change. That is, some institutions might show greater persistence and inner strength than others. And from an analysis of such differential change it might be possible to learn which institutions are most vital and basic to the general structure of Indian society. Knowledge gained from such a study could then be utilized in an assessment of Indian society in India.

The following paper will be limited to a study of the changes in two institutions of Hindu social organization, the extended family and the caste system, in a community of Indians in Trinidad. Further a comparison will be drawn between the two in an attempt to learn which is the strongest and most necessary for the continuance of a Hindu way of life in an alien environment.

The Indians of Trinidad are descendants of indentured workers who have migrated to the island between 1845 and 1916. The majority of them came from north central India, and the common language spoken is a dialectical form of Hindi. During the 113 years they have been on the island many of them have achieved considerable economic independence in the movie industry, transportation, and shopkeeping. The majority, however, has remained in agricultural pursuits, either as workers on the sugar plantations or in growing cocoa. As an ethnic group they have acquired much agricultural land and nowadays, with the exception of the whites, they are the wealthiest landowners on the island. As a result of this interest in agriculture most Indians live in rural areas, principally in two lagoon (lowland) regions, where they can grow rice and sugar. However a considerable number has migrated to the cities and more go to urban centers each year. As would be expected, the urban Indians have become more acculturated

toward western customs than the rural people. However, it should be mentioned that Trinidad is not a large island (approximately 60 by 40 miles) and the transportation system is so convenient that the differences between rural and urban Indians are not nearly as great as such differences are in India. Indians today make up about 40 percent of the island's population and their religious affiliations are roughly 70 percent Hindu, 15 percent Moslem, and 15 percent Christian. The Christians have almost all been converted from Hinduism.

The area which will be described in this report is the Oropuche Lagoon, one of the two large rural areas where Indians have concentrated. Most of the people here engage in agricultural pursuits, growing sugar, cocoa or rice, or a combination of these. Their economic position varies from that of landless workers on the sugar estate to independent cocoa growers who own several hundred acres. It should be mentioned that the village system did not persist in Trinidad. Though there are villages, these primarily serve as sources of supply to the surrounding agricultural people. Most people in this area live either in the clusters of barracks set up by the sugar companies for their workers or in houses on their own land scattered throughout the area.

During the early days of Indian settlement in Trinidad there were evidently efforts on the part of individuals to retain the prestige of their caste position, particularly if they were Brahmans. Collens, an early chronicler in Trinidad, mentions that Brahmans and Sudras did not sink to the same level. He states that "the sceptre of the maharja Brahmin dwindles to the insignificance of a hoe handle but poor as he is he will look down on his caste inferiors," (1886 : 190). Morton, a Presbyterian missionary, also states that Brahmans were not supposed to work but were to be provided for by the offerings of their disciples. He describes one Brahman who picked out his eyes so that he might not be put to work (1916 : 69). It is to be doubted that such an attitude toward work was a characteristic of all Brahmans, since even in India most are in some kind of secular work. Probably what he was referring to were pundits, those Brahmans who do serve as priests. Despite the difficulties in this new environment, Brahman priests received much respect in these early days. Gamble, another early traveller in Trinidad, reports that "There are some of the Brahman caste among them and it is revolting to see the way a woman, for instance, will drop down, touch the foot of this holy Brahmin, and then kiss the hand that has been in contact with the priest's foot . . ." (1866 : 46).

In the past one hundred years the practices dictated by caste membership have changed drastically, to the extent that it would be almost impossible to imagine any of the above incidents happening

today. There has been almost no sympathy by non-Hindus towards the institution of caste and, moreover, there has not been any economic basis for caste differences. Where in India the agricultural landholders tend to be of the higher castes and the agricultural laborers tend to be landless laborers, or at least possessing only a small amount, of land, in Trinidad all men started out as plantation workers and none owned land. This is not to say though, that no caste differences have survived until today. In the Oropuche Lagoon area a hierarchy is accepted by most Hindus. Roughly the groups would be ranked as follows with those of highest prestige at the top and those of lowest at the bottom :

Brahman	
Gosain	(high castes)
Chattri	
Kurmi	
Ahir	
Koiri	(middle castes)
Lohar	
Bania	
Kayasth	
Chamar	
Dom	(low castes)
Dhobie	

This classification reflects that of North India quite well. In Uttar Pradesh, the center of the Hindi speaking area of North India, Brahmans or Chattris are generally conceded to be the castes of highest prestige and in most rural villages the wealthiest landholders are from one or the other of these two castes. The Gosains are highly regarded religious leaders from the Assam Valley (Hutton 1951 : 98) and they have been accorded a place at least as high as Brahmans in Trinidad. The middle castes are those which are classified as ceremonially clean in India but well below the level of the highest castes and usually not being important landholders. The lower castes are those which in India are classified as ceremonially unclean, or "untouchable."

Distinctions of caste in Trinidad are mostly focussed on the high and low castes. There is some deference still shown to Brahmans, particularly those who serve as pundits. When food is served at a Hindu ritual offering (puja), Brahmans are usually taken care of first. There are still a few occasions when the Brahman's feet are touched in honorific greeting. Sometimes, also, devout Hindus

bequeath land or animals to Brahman priests in their wills. A man who is a Brahman is looked up to by virtue of his birth to a certain extent, regardless, what occupation he is following. Thus, there are Brahmans in such occupations as operating service stations and practising law who are still referred to in conversations as *punditji*.

On the other hand, because many of the Brahmans as well as the Chattri's have taken up all sorts of occupations, some of which are not highly respected, they have been lowered in the eyes of the Hindu community. It would be impossible for all of them to be priests for economic considerations alone. Most pundits now engage in some other occupation besides presiding over religious functions, simply because they cannot manage economically any other way. A majority in the Oropuche Lagoon has a certain amount of land which they tend when not serving as priests. Others get into secular occupations of one kind or another. I knew of one who worked as a taxi driver during the day and at night went off to the different religious functions as a pundit. Those who do not work as pundits are found in all occupations from the highest to the lowest in prestige. There are even Brahman proprietors of rum shops in the Lagoon Area. Because of the high regard Brahmans have had in the past, they are criticized more severely when they engage in such pursuits as operating rum shops than other Hindus.

On the other end of the scale are the low castes. They still carry some of the low regard which is a legacy of their caste position in India. Hindus who wish to insult each other will often use the term "Chamar." I was among a group of Indians on one occasion when a man was explaining how a certain spirit had appeared to him on several occasions. While he was talking, another man in the group interrupted him periodically to clarify or elaborate certain portions of the story. Finally, the speaker in exasperation addressed the intruder in the following way, "Man, you're a jackass and from the lowest nation on earth, the Chamars, and if you don't keep quiet I'm not going to tell any more of this story."

The bystander was obviously embarrassed and though he did not leave, he interrupted the speaker no further during the recital.

There are some residence clusterings of low castes, probably to a large extent because of their habit of raising pigs and eating pork. There is a hamlet in this area known as Dom Village which is said to be inhabited by all Doms. Also, one end of the town of Penal, the section where most Negroes are found, has a heavy concentration of low caste Hindus, many of whom raise pigs. Though Hindu food taboos in Trinidad have been greatly relaxed, the eating of pork by any but the low castes is still exceptional. As will be indicated further on, marriage between different castes occurs frequently and it does happen that a man of low caste will marry a woman of middle

or high caste. In such instances the wives will often cook pork for their husbands but will not eat it themselves. The one other food which most Trinidad Hindus still avoid eating is beef. Cows are not treated as sacred in Trinidad to the same degree that they are in India, but it is readily noted that a considerable number of Indians keep milk cows. Bullocks are rarely used as draft animals nowadays in Trinidad as they are in India, but there are a number of water buffalo used for such purposes in the swampy lagoon areas. In general though, motorized vehicles are rapidly displacing animal powered equipment. The cow, then, serves almost entirely as a source of food and to Hindus this consists entirely of dairy products. I know of no instances where cows were killed by Hindus.

The repugnance towards the idea of eating beef is deeply rooted in the Hindu conscience, to such an extent that many Christian Indians, whose parents were converted from Hinduism still find it almost impossible to consider eating this meat. The eating of pork, except by low caste Hindus, is almost as repugnant as beef eating.

In some cases the grown children of converted Hindus eat pork though the parents do not allow them to cook it at the same stoves they use. On rare occasions that beef is eaten either by Hindus, or Indian Christians who have been converted from Hinduism, it is likely to be canned beef from Argentina. This meat is relatively cheap and has the advantages that it can be kept without refrigeration and need not be cooked the day it is bought as must be done with fresh meat.

In India to eat chicken or eggs is considered by orthodox Hindus as only slightly less polluting than to eat pork (Hutton 1951 : 77). However, in Trinidad the attitude towards fowl has changed perhaps more than with any other meat. Almost all rural families of the Oropuche area keep a flock of scrawny chickens and there is little objection shown towards eating either the birds or their eggs. Also, it should be mentioned that fish are plentiful and cheap in Trinidad and are eaten by Hindus in large quantities.

Probably the most acceptable meat among Hindus is goat flesh, even as it is in India. Goats are relatively plentiful and there is no objection to eating them by Hindus, if they will eat any kind of meat.

For food served at Hindu ritual functions meat is almost always absent. Meals are provided at weddings and at the various rituals (*puja*) that Hindus give throughout the year. The meals almost always consist of rice, *roti*, curries and various hot pickle dishes. The curries at weddings and other Hindu ceremonial functions are always made of vegetables only.

Hindus who subsist entirely on a vegetarian diet are rare. All *sadhus*, some *pundits*, and a few very devout Hindus do not eat meat, but this constitutes only a small proportion of the total Hindu popula-

tion. Many Hindus do not eat much meat, restricting meat dishes to once per week, usually on the weekend. The small amount of meat eaten is primarily a matter of cost, however, since many people can't afford to buy it more than once a week.

There is little evidence of fastidiousness in the type of vessel used for eating in Trinidad. In India both the use of locally made earthenware and hardfired china is frowned upon by orthodox Hindus because it is believed these vessels cannot be properly cleaned (Hutton 1951: 77, Niehoff 1957). In Trinidad Hindus normally eat out of china dishes and the only persons I knew who used the traditional brass vessels for everyday use were sadhus and, on occasion, pundits. The *thali* is used for ritual purposes only by ordinary Indians. At Hindu weddings it is traditional for friends and relatives to give these brass trays to the bridegroom. Sometimes he gets as many as fifty or sixty of them. However, he does not keep all these trays. He either sells them or uses them later as gifts at weddings where he is the guest. These vessels, as well as all other objects of brass available in Trinidad, are imported from India.

The only evidence of touch pollution that we noticed in Trinidad was at some ceremonial functions. At these affairs there is some effort made to keep Moslems or low caste Hindus from directly touching the food being prepared. One Moslem woman I knew was much in demand for helping to cook at weddings and prayer rituals, but orthodox Hindu families would not allow her to come inside the cooking shed. She stayed outside and peeled vegetables but she could not stir the cooking pots. She was allowed to serve cooked food to the guests, however. It is also significant that my wife was allowed free access to cooking areas in Trinidad and assisted the women on many ceremonial occasions, whereas in India she could only observe cooking procedures even where a good friendship had been established with a Hindu woman.

There is practically no connection between caste membership and occupation nowadays in Trinidad except for pundits and a scattering of individuals who follow some traditional craft. *Barhais* (carpenters) are still to be found working in house construction and, also, a few of them make traditional Indian drums. There are a few *Kohars* (potters) who make both traditional pottery vessels such as the *dia* for Diwali and new types which can be sold in the Trinidad markets. Also, there are some basket-makers who follow their traditional caste occupation. In general, though the economy of Trinidad is so independent on imported goods that the craft worker has great trouble in obtaining a reasonable profit, and consequently most of them have given up the traditional occupations.

Seemingly, one of the strongest bulworks in the caste system in India is caste endogamy. In north India marriage between castes

only happens very rarely. In several recent village studies no inter-caste marriages were found (Lewis 1958 : 160; Opler & Singh 1948 : 471; Marriott 1950 : 175). In a survey of 170 factory workers in the city of Kanpur I found no *bona fide* examples of inter-caste marriage (Niehoff 1957). And in a study of marital advertisements of north Indian newspapers, though there were found to be considerable other changes, marriage within the caste was still the norm (Niehoff 1959). Eighty-six percent in this sample of 213 advertisements either requested spouses of their own caste or else stated their caste and asked for a suitable mate. No other specification for a spouse was listed so often. This group would consist of the least orthodox Hindus in India.

In Trinidad, marriage between castes has become quite common, with probably as many marriages between castes as marriages within the same caste. Hindu parents prefer to get mates for their children of the same caste, but there are other considerations that they will regard just as important, or more so. Financial position and education and physical appearance are three such qualities also. In so far as people consider caste at all in choosing mates for their children, they try to avoid the extremes. High and even middle caste parents try to see to it that their children are not mated to someone from the low castes. In particular, efforts are made so that the girls will not marry someone of a lower caste. There is precedent for this in the Indian custom of hypergamy. In India, however, the bride of a lower status is from another subcaste rather than another caste as in Trinidad (Hutton 1951 : 53-54). Castes have been inter-carrying between one another in Trinidad long enough by now that it is difficult for parents sometimes to decide what caste their children rightfully belong to. In general, Trinidad Hindus consider a child to belong to the caste of the parent of the highest caste status. There are even some Hindus who are unsure of their caste and others who have forgotten completely what caste they belong to.

The extended or joint family of India is similar in most ways to extended families in other parts of the world. Its interrelationship with the caste system and the seclusion of women are probably the most important. Along with the caste system, this family type was brought into an alien environment in Trinidad. The European family was not of the extended type when Indians arrived and the Negro family, by whom Indians were more strongly influenced, was characterized to a high degree by concubinage and what is called the non-legal union (Matthews 1953 : 1). This union is characterized as a relationship relatively durable between two marriageable people, "living under one roof . . . without any formal religious, civil, or social ceremony." (Matthews 1953 : 2). It can be easily seen that such a marital relationship has no similarity to that brought to Trinidad by the Indians. It must be remembered also that in the early days

the Indians were greatly outnumbered by Negroes and that cultural borrowing from Negroes was considerable. Right from the beginning, then, the extended Indian family was challenged.

An added disability which the Indian extended family had to struggle against in the early days was the disparity of numbers between the sexes. Since the planters encouraged the indenture system solely to get field workers they were more interested in men than women. The disproportion of men to women which resulted, created social and moral problems in practically all the world areas where Indians were sent as laborers in the 19th century. Even as late as the early years of the 20th century there were still about three times as many men as women being sent to Trinidad. If the surplus Indian males had willingly accepted Negro females as spouses the kind of situation which developed might not have taken place, but there is every indication that instead of accepting Negro women, they competed among themselves for women from their own country. As a result of the demand for them, women became more independent in Trinidad than would have been possible in India. According to the early reporters when Indians came to the island, fidelity was not one of the virtues of women. "The wives, although they have a regard for their families, and make fond mothers, are not very strict in their fidelity towards their husbands." (Hart 1866 : 101).

Morton mentions that the Indian women were quite important due to their small number (1916 : 185). Jealous husbands or lovers, who often resorted to violence, are reported many times for this period and this stereotype for Indian males still exists in Trinidad. "Coolies (Indians) do not have a good reputation with police. Negroes quarrel with their tongue, but the coolies kill. Women, being few, are often unfaithful. The coolie who learns this kills his wife without the least hesitation." (Froude 1909 : 67).

"The coolie husband is of a frantically jealous disposition. . . Three-fourths of the murders in this colony may be traced to this cause." (Collens 1886 : 197).

Another disadvantage which the Indian family has suffered historically in Trinidad is that marriage as performed by Hindu or Moslem rites was not recognized as legal by the government until quite recently. Marriage as performed by a Moslem *imam* was accepted as a legal rite in 1936 and marriage by a Hindu pundit was made legal in 1946 (Laws of Trinidad and Tobago 1950 : 56, 69). The consequence of the legal non-recognition of Hindu and Moslem marriage rites previous to the 1930's was that such a marriage was taken seriously only by the Indian community since in the eyes of Trinidad law it wasn't marriage anyway. Children from such a marriage were considered illegitimate. And because Hindu and Moslem rites were not recognized for so long a considerable portion of the Indian community became accustomed

to nonlegal "under the bamboo" marriage; so that now a days, when marriages can easily be registered, quite a number of Indian do not bother with civil registration.

Despite the great disadvantage the Indian family has experienced in its hundred years history in Trinidad, it still stands apart as a distinct family type as compared to the similar institutions of the other ethnic groups of the island and retains a remarkable degree of Indianness. The Indians of Trinidad view marriage perhaps as the major focal point in the affairs of the family and, undoubtedly, with more justification. It is at this time that an outsider is brought into the circle of kinship, and if this circle is to function with a considerable degree of unity the selection of the outsider has to be carefully considered. The majority of Trinidad Indian marriages are therefore arranged by the parents, or other responsible elders, even as they are in India. There is very little social intercourse between young people who are married. Indian girls do not go out on dates or to dances and a girl is usually suspect if she is seen talking to a young man on the street or road. In the Oropuche Lagoon area a Moslem or Hindu girl who went to a dance would be considered a prostitute. The only place where an Indian girl would not be censored for going to a dance would be the Himalayan Club, the one important social club for Indians in Trinidad.

After the parents have located a likely mate, the normal procedure is to bring the boy to the girl's house where she can see him and speak to him briefly. Their wishes are then weighed and if the young people agree, the parents go ahead with the rest of the marriage arrangements. It is uncommon for Indian parents to ignore the wishes of their children entirely, although they may apply considerable pressure to get them to accept a mate they have selected. When an agreement has been reached between marriage partners, the boy is often allowed to see the girl several times at her parents' home although there are still women in the Oropuche area who never saw their husbands before marriage or who saw them so briefly that they did not recognize them on the day of the marriage.

Sometimes the boy will see a certain girl on the road or market place or some other public place and will then ask his parents to arrange a marriage with her. If she seems suitable, the parents will often do this. There are even cases in which the boy, whose father is dead or who has no suitable male relatives, will make the arrangements with the girl's parents himself.

The age of marriage among Indians in Trinidad remains low, largely because parents still have primary control of the institution. The legal ages for marriage are sixteen for Moslem males and twelve for females, while Hindu males must be eighteen and females fourteen. Considering both registered and unregistered marriages, however, the majority

of the Indian females are married before the age of 19 with well over a third being married before the age of 14. It should be mentioned that the *gauna* rite which in India follows the marriage ceremony by several years, and at which time cohabitation actually begins (Lewis 1958 : 159), is not observed at all in Trinidad. Some older women can remember marriages of the past when this rite took place but most know nothing of the ceremony. In 85 cases of Indian women who attended the Pt. Fortin birth control clinic 30 (35%) were married at 14 or under, while 45 (53%) were married between the ages of 15 and 19 (Pt. Fortin 1957 : 12). In 28 cases which I collected in the Penal area, 23 (82%) were married by the age of 19. Of the 42 cases in which the women were 14 or under, there were nine in which the women were less than ten years of age.

When Hindus are preparing to be married it is necessary that the pundits read their horoscope to learn whether they will be compatible and to set the time for the wedding. However, in Trinidad the planetary correspondences are largely tempered if the two individuals seem to be compatible. It was reported that many pundits, when asked to read the horoscopes of young people who were planning to be married, first tried to find out if they were satisfied with the match and then deciphered their horoscopes accordingly. A Hindi saying is current in Trinidad which illustrates this belief. "Jo munna thiik hei, to gunna bhii thiik hai." (When the temperaments are compatible then the horoscopes are also compatible.)

It is claimed in Trinidad that according to the *jotis*, the Hindu book of horoscopes, the marriage period should be from January to April and in June. Lewis mentions that most marriages in the village he studied took place in May and June after the harvest season (Lewis 1958 : 180). Now a days there is little heed paid to these periods in Trinidad, marriages being held whenever the individuals want them. Also, the particular day of the marriage is supposed to be set by the pundit in accordance with the horoscope. Here again though, the most convenient day, Sunday is usually arranged for instead of the day which would be auspicious according to the horoscope. It is reported that individuals now a days don't ask the pundit which day their marriage should take place, but rather ask him which Sunday would be most propitious.

An integral part of Hindu marriage arrangements is the dowry which is settled by the parents of the couple. In Trinidad this dowry ranges in amount from a few dollars up to \$500 or more and may also include material goods of prestige and wealth in the more well-to-do families. Houses, cars, and small shops are some of the things offered in such cases. In many cases when a boy is reluctant to get married a high dowry of either money or goods is used to tempt him.

The marriage rite is one of the most important of the socio-religious

events that Trinidad Hindus observe. A series of rituals begins on Friday night and lasts until Sunday evening. There is considerable expenditure for food and drinks during this time. There is much visiting, particularly at the final marriage ceremony on Sunday. Weddings are quite popular with Indian women since their opportunities for social intercourse are much more limited than those of men. A considerable amount of drinking goes on at these affairs, also. Alcoholic drinks are not served at the wedding feast but individuals bring their own and, also alcoholic drinks are sometimes served in an isolated room of the wedding house to special guests. One Trinidad pundit described it this way: "Hindu marriage is a beautiful ceremony but nowadays it's a mess. People make a fete out of it, drinking rum, smoking, and generally having a good time."

Because of the drinking and levity that takes place at the main ceremony, it is observed during the day even though traditionally it is supposed to occur at night. This change has taken place in Trinidad during the last ten or fifteen years.

Although a man can have only one wife by registered marriage, he can have more in accordance with Hindu beliefs. In Trinidad a Hindu man can theoretically have seven wives, though a Hindu woman can marry only once. The Hindu attitude has been reinforced by the Hindu marriage law which makes no provision for divorce. It is claimed that formerly unscrupulous Hindu men would marry simply to get the dowry and then abandon the wife. The efforts to prevent this happening in registered marriages, and also the high caste Hindu objection to divorce on religious grounds, resulted in the absence of provisions for divorce in the marriage law. Today many Hindus feel there should be a divorce clause in the marriage act.

Multiple wives do occur in Trinidad, though as in all societies, they are an uncommon form of marriage for economic reasons alone. Undoubtedly, an additional pressure against plural wives in Trinidad is the fact that the social group which has been dominant politically until 1958 (Europeans) did not recognize this form of marriage. I have heard of Indian men having as many as five wives though in the cases of polygamy that I actually knew, there were only two wives for each of the men. In these plural marriages each wife usually lives in a separate house. Besides multiple wives which have been married in Hindu rites, some men live with women as "keepers." Hindu women, in particular, resort to the "keeper" relationship if their husbands die because they are not allowed to go through the Hindu rites again. They are simply concubines or kept women, who live in separate houses, if the man is already married. Some such relationship proves quite stable, particularly if the man has no regular married wife by Hindu or civil rites. I knew cases of women living with men for most or all of their life and raising several children without

ever being married. This kind of relationship is quite similar to that of the Negro non-legal union mentioned earlier.

After marriage the young couple stays three or four months in the husband's father's house and then moves "one side." This is usually a nearby house, often on the same piece of property. This kind of settlement pattern is particularly true if there is any appreciable amount of land and the sons are farmers, though even if they follow other occupations they tend to move into a house near the father's. The oldest son very often stays in the father's house, particularly if the father is too old or too weak to manage his affairs. The true extended household unit as known in India, in which all sons and their wives live in the house of the father, is a definite rarity in Trinidad. It is felt that too much quarrelling occurs if all the children are living in the same house.

Elders are respected by younger members of the family but not to the same extent as in India. The practice of greeting by touching the feet of older persons is very rarely observed. In those few cases where younger people do this, it is only to their mother or father. Most Hindus claim they touch the feet of Brahman pundits only, and by no means do all of them do this. However, this practice is usually observed when a pundit comes to a house to officiate at a *puja*. In general, the younger people are expected to do what the older people tell them to do, not to curse them, nor use obscene language in their presence and to minister their wants. The younger members of the family, particularly the wives, massage the limbs or other parts of the body that are hurting their elders at bedtime. If a son, or sons, is living with one or both parents, it is usual for the older persons to be in charge of the financial affairs. In the more traditional families the sons bring all their salary home to the father who then gives them back what he thinks they need for spending money. When the parents get very old or feeble they turn these affairs over to the son who is living with them.

The relative position of Indian men and women in Trinidad resembles that in India, though the stricter forms of seclusion and protection of women are not found in Trinidad. Women do not cover their faces when in the presence of non-related males. However, in the presence of their fathers-in-law they are expected to keep their heads covered with the *oroni*, the thin shawl or head covering that most rural Indian women wear. It has already been noted that unmarried Indian girls are expected to have very little social intercourse with non-related males. Even after marriage there are measures to restrict such mixing. At practically all Hindu religious functions men and women are kept apart. In the cases of the big Hindu pageants, the Ram Lila and the Krishan Lila, the male and female spectators are assigned to opposite sides of the play area. At Hindu prayer

rituals and also at weddings men and women stay in separate areas. It must be mentioned that these practices of segregation are quite contrary to the practices found among Negroes and the other non-Indian ethnic groups on the island. At all public functions of these other groups, women mix freely with men.

In the home the Indian woman is expected to serve and obey her husband. She serves the food and generally eats after the husband is finished. At weddings and other public functions the men are always served first. In general, the men have control of the household money. Quite often the wife keeps the money at home and gives the husband amounts as he requests them. She does not spend any, however, without asking him. A dutiful wife also asks her husband when she wants to go out.

Land is normally inherited by the sons, with the oldest being favored. This applies to Indian Christians as well as Hindus and Moslems. Male inheritance is tempered by the treatment children give their parents, however. A girl may be favored if she had taken care of her parents in their old age while her brothers neglected them. A wife may inherit land from her husband if there are no brothers or if the brothers didn't get along well.

The position of women is brought out rather clearly by a Hindu husband's account of a famous murder that had occurred some time before our arrival in Trinidad. An Indian doctor was convicted and executed for the murder of his wife, a German woman. The interpretation of this crime by a Hindu of the Oropuche Lagoon is as follows: "He was an important man and he wanted to marry a white woman. He married this German woman in Port-of-Spain against his father's wishes. She was a big shot and she was used to going out to functions. Now you know, an Indian wife, if she wants to go out, she asks her husband. If he says it's all right she can go out, if he says "no", then she can't. But this Indian husband couldn't tell his woman when to go out because she was white so she went out when she pleased. And then they found her body tied in a sack in the sea. And he paid the price and was hung."

It can be readily seen that considerable changes have taken place in the two institutions of Hindu culture that have been described. This is to be expected since these people migrated to an alien environment where they were in a minority and where there was little sympathy or understanding for the culture they had brought with them. This general change will not be dealt with in this summary, however, though the comparative change will. Both Hindu caste customs and the structure of the Hindu joint family have been retained to some degree in Trinidad. However, it is my thesis that the family structure has shown much more inner strength than has the caste system. In fact, it is evident, I believe, that as a method of organizing human relation-

ships the caste system has become very insignificant already, and that within another generation or so caste practices will remain only in the memory of the older Indian. This is not true in regard to the Hindu family. Though here too, there have been many changes, the family structure as brought from India shows a considerable vitality, and is the one important social institution that sets the Hindu community from the other Trinidadians.

To sum up the caste structure in this Trinidad community, it can first be said that there is still a hierarchy of castes, though except for the attitudes toward the highest and lowest castes, there are very few social practices connected with these differences. Brahman pundits are still somewhat respected though those Brahmans who do not serve as priests are often highly criticized, principally because they engage in undignified or lowly regarded occupations. Anyway, the relatively high regard for Brahman pundits can be interpreted as a regard for their religious activity rather than their position in the caste structure. In this regard, it is undoubtedly relevant that the Gosains, who also act as priests in Trinidad, are regarded to be on a par with the Brahmans. The low castes such as Doms, Chamars and Dhobies still suffer some disabilities but these are very minor in comparison to the disability they suffer in most Indian villages. There is practically no problem of touch pollution in Trinidad, except on ceremonial occasions when low castes are not allowed to help cook in the communal cook-house. The problems such as which castes will take food and water from which other castes are non-existent in Trinidad. The inter-relationship between caste and occupation is also practically non-existent. Probably the most telling change that has taken place among these migrant Hindus is that caste endogamy has broken down almost completely. While parents still prefer to have their children marry someone from the same caste they make no great issue on the point. Probably at least half the marriages now are between castes. Moreover, there are even marriages between the highest and the lowest castes. One last point in the increasing ineffectiveness of caste in Trinidad is that there are Hindus now who are not even sure what caste they belong to.

The Hindu family structure has suffered as many, or more, difficulties in Trinidad as the caste system. Two of the most important disability were the disproportions of sexes of the migrants and also the legal non-recognition of Hindu marriage until 100 years after the first migrants arrived. Despite these difficulties, however, the Hindu community rallied and ultimately established a clearly recognizable form of the joint family. The possibility of Indian men taking Negro wives never occurred to any important extent. If this had taken place, the Hindu form of the family would undoubtedly have disappeared. Instead, Indian men competed for the few Indian

women there were, and because of this competition, Indian women were quite independent at one time. However, with the passage of time and with the equalization of sexes through reproduction on the island, the relative position of men and women as found in India was re-established, though tempered. Nowadays the male is the family leader, both in public and in private. Men are served food first at home, are the holders of the family money, and inherit the family property as a rule. And although there is no seclusion of women as found in India, females are segregated from males at public functions. Also, unmarried females are expected to have no social intercourse with non-related males. Marriage is still arranged by the parents and the dowry as a means of cementing relations between the two families is quite important. Marriage age is quite low by Trinidad standards though high as compared with that of India. Elders are respected and obeyed though with less deference than in India. The predominant residence pattern is virilocal. Though there are a few homes where sons and their wives remain in the paternal household, the general practice is for the newly married couple to move into a house of their own which, however, is often adjacent to the house of the father. All things considered, the extended family in Trinidad is a going concern while the caste system has lost most of its effectiveness.

It would naturally be asked why one institution would fail under pressure and the other would survive. I believe that family structure is more basic and important to the individual than his caste membership. Both institutions had to struggle for survival in this new environment and ultimately the price of the struggle was greater than the value of retaining the institution in the case of caste. Moreover, the caste involves a much wider net of relationships than does the family, and as a consequence, it is more difficult to discipline inalcitrant members in a caste than in a family. According to this thesis the smaller and more tightly knit the institution, the better are its chances for survival in a situation of pressure.

REFERENCES

- Cohn, Bernard S. (1955). *The Changing Status of a Depressed Caste in "Village India"*, American Anthropological Assoc. Memoir 83, 1955.
- Collens, J. H. (1886). *Guide to Trinidad*.
- Froude, James A. (1909). *The English in the West Indies*, Longmans, Green and Co., New York.
- Camble, Rev. W. H. (1866). *Trinidad: Historical and Descriptive*, Yates and Alexander, London.
- Hart, Daniel, (1865). *Historical and Statistical View of the Island of Trinidad*, Judd and Glass, London.
- Hutton, J. H., (1951) *Caste in India*, Oxford University Press, London.
- Laws of Trinidad and Tobago, (1950). C. T. Roworth Ltd., London.

- Lewis, Oscar, (1958). *Village life in Northern India*, University of Illinois Press, Urbana.
- Mandelbaum, David, (1948). *Family in India* in Southwestern Journal of Anthropology, Vol. 4, No. 2, University of New Mexico, Albuquerque.
- Marriott, McKim, (1955). *Little Communities in an Indigenous Civilization in Village India*, American Anthropological Association Memoir No. 83, Menasha.
- Matthews, Dom Basil, (1953). *Crisis of the West Indian Family*, Extra Mural Department, University College of the West Indies.
- Morton, Sarah E. (1916). John Morton of Trinidad, Westminster Co., Toronto.
- Niehoff, Arthur, (1957). *Caste, Class and Family in an Industrial Community of North India*, Ph. D. Thesis, University Microfilms, Ann Arbor, Michigan.
- Niehoff, Arthur, (1959). *A study of Matrimonial Advertisements in North India*, Eastern Anthropologist, Lucknow Vol. XII, 2.
- Opler, Morris and Singh, Rudra Datt, (1948). *The Division of Labor in an Indian Village* in "A Reader in General Anthropology," ed. Carleton S. Coon, Henry Holt and Co., New York.
- Point Fortin Family Planning Clinic, (1956-57). Pt. Fortin, Trinidad.
- Srinivas, M. N., (1955). *Castes, Can They Exist in India of Tomorrow?*, Economic Weekly, Vol. 7, No. 42, Bombay.

A PRELIMINARY STUDY OF THE FINGER-BALL PATTERN FREQUENCY AMONG CONVICTS IN A JAIL (U.P.)*

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This paper is based on finger-ball patterns of 808 male convicts lodged in a Jail in U.P. The prints were taken during the months of May and June, 1955. During the survey it was not possible to study the finger prints of the total convict population of the Jail for several reasons : the Indian rural population is usually suspicious of any studies about its social living and more so about a study involving individual physical measurements; the circumstantial residence of the individuals studied made the problem still more complicated. I, therefore, did not attempt any sampling or selection of any kind, and all those persons who willingly submitted were included for finger printing. This group comprises of a large number of Hindu castes with Brahmins at the top and Mehtar, Dom and Chamar at the bottom. Various intermediary castes have their ample representation. One hundred Muslims have been included in the sample thus studied.

Pattern identification of the finger-balls has been done after Cummins (1943).¹ The same rule was followed by Robert E. Popham (1953)² in his studies on Digital-Patterns of Eskimos. Lateral and central pockets and double loops have been counted as whorls and loops with zero ridge count as arches. Radial loops have been counted both separately (Renees 1946)³ and jointly.

The distribution of patterns (Table 1) is more or less the same in both the hands. The whorls are less in numbers than the loops. The highest frequency for whorls is observed in the fourth fingers in both the hands and lowest in the third of the right and fifth of the left hand. The second largest figure is found in the first finger in both the hands. The highest concentration of loops in the right hand is noticed in the third finger, and the fifth follows quite closely. In the left hand, however, the highest concentration is found in the fifth finger and the second place is occupied by the third finger. The first and second fingers in the left hand have a very close figure but such is not the case on the right hand. The frequency of loops in the fifth finger in the left hand surpasses the highest figure in the right hand. Radial loops, distributed all over the fingers except fifth in the right hand and first and fifth in the left hand have the highest frequency in the second fingers in both the hands. The

* The name of the jail cannot be disclosed as the Govt. permitted us to work among the convicts on the condition that the names of individuals and the jail shall not be published.

TABLE 1.—SHOWING PERCENTILE FREQUENCY OF FINGER-BALL PATTERNS IN EACH DIGIT IN RIGHT AND LEFT HAND
Total number of individuals 808

Digit Number	Right				Left					
	Whorls	Ulnar Loops	Radial Loops	Total Loops	Arches	Whorls	Ulnar Loops	Radial Loops	Total Loops	Arches
I	58.91	38.86	0.25	39.11	1.98	47.89	49.63	—	49.63	2.47
II	44.43	40.35	7.92	48.27	7.30	41.46	39.98	8.66	48.64	9.90
III	27.10	69.18	0.25	69.43	3.47	30.82	64.23	0.37	64.60	4.58
IV	69.18	29.58	0.12	29.70	1.11	60.27	37.87	0.25	38.12	1.69
V	31.44	67.95	—	67.95	0.62	26.11	73.51	—	73.51	0.37
Total	46.212	49.184	1.708	50.892	2.896	41.31	53.044	1.856	54.90	3.802
Both hands	Total				Total					
	Whorls	Ulnar Loops	Radial Loops	Total Loops	Arches	Whorls	Ulnar Loops	Radial Loops	Total Loops	Arches
Both hands	43.761	51.114	1.782	52.896	3.349					

percentage in the left hand is higher than in the right hand, whether counted separately for each finger or considered together. The arches are distributed all over the fingers in both the hands and like radial loops their highest concentration is observed in the second fingers in both the hands. Fingers third, first, fourth and fifth give the percentage in the descending order. This is true for both the hands. The percentage in the left hand fingers is higher than in the right hand in respective fingers except the fifth. In this case the situation is altered and the fifth in the right hand shows a higher percentage than the left. On the whole, frequency of arches is higher in the left than in the right. The difference in the percentile frequency of whorls and loops is greater in the left hand than in the right. The radial loops in right and left hands are almost equal in their percentage. The frequency of patterns on individual digits has been shown in Figure 1.

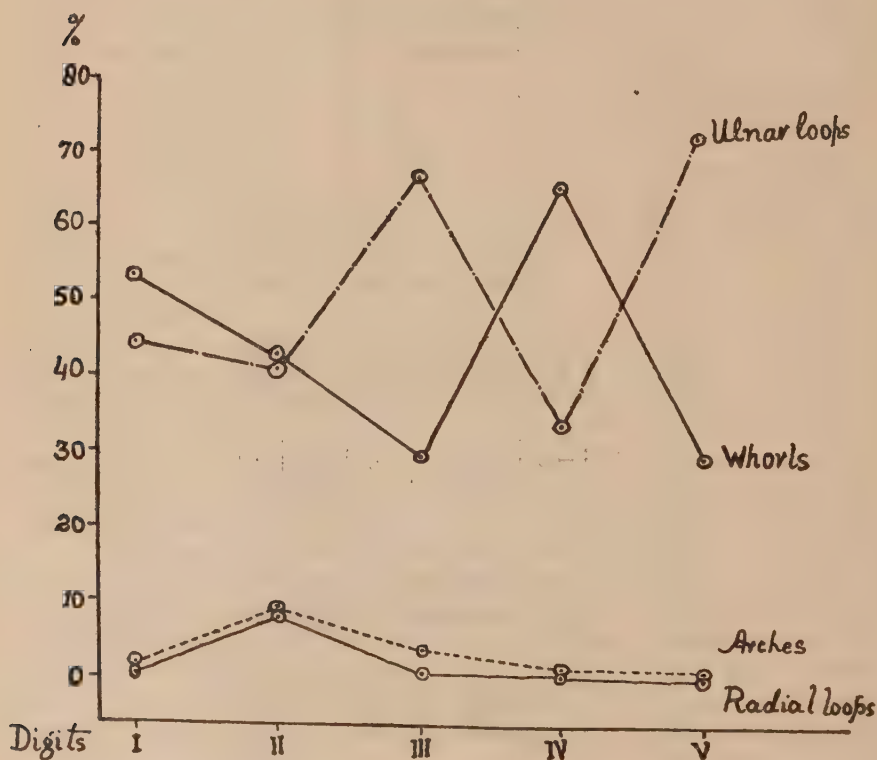


Fig. 1 : Frequencies of whorles, ulnar loops, radial loops and arches on individual digits.

COMPARATIVE EVALUATION

The comparison of this data (Table 2) with Lucknow jail series, worked out by Sen⁴ (1955), presents some interesting differences between the two. The Lucknow sample gives a higher frequency of whorls than loops, whereas in my sample, the latter have a higher frequency than the former. In the Lucknow jail sample, the percentile frequencies of whorls and loops in the right hand do not deviate significantly from the left hand, and the arches are almost equally distributed in both the hands. In my sample the distance between the whorl and loop frequencies is quite obvious between the two hands. The difference between the whorl and loop frequencies in the right hand is less marked than the left. The percentile frequency of whorls (50.43) in the right hand in the Lucknow sample corresponds with the percentile frequency of loops (50.89) in the same hand in my sample; almost similar is the case in the left hands of both the samples. The big difference in the size of the two samples, however, does not seem to play any significant role in the percentile frequency of arches as no valuable distance is discernible. Both the samples indicate that the arches are distributed almost in equal percentage in the two hands.

TABLE 2—PERCENTILE FREQUENCIES OF FINGER-BALL PATTERNS IN BOTH THE HANDS CONSIDERED TOGETHER IN LUCKNOW, MORADABAD, BENGAL AND U.P. (THE PRESENT AUTHOR) SAMPLES

Authors	Whorls	Total Loops	Arches	Places
Sen	51.31	45.90	4.48	Lucknow criminals
Sen	48.03	48.68	3.11	Moradabad Criminal Tribes (Females)
Sen	50.12	45.06	4.54	Moradabad Criminal Tribes (Males)
Biswas	34.8	60.2	5.0	Criminal Indians (Bengal)
Present Author	43.76	52.896	3.349	U.P. Convicts

The indices (Table 3) show that no appreciable difference between the two groups is noticeable in the index of pattern intensity. There is a minor difference in the right hand and both the hands together but it increases further in the left, though not appreciably, and a lower index of pattern intensity is noticeable in my sample. In Sen's sample, the arch/whorl index in right, and both the hands together, is higher than the same in my sample but the index for the left hand goes higher in the latter than in the former. The table shows that the difference in the right and the left hands is

greater in my sample than in the Lucknow sample. From Furu-hata's index, it is noticeable that the Lucknow Jail sample presents almost identical indices in both the right and left hands, but a greater difference is observed in my series : (right hand 90.80, left hand 75.25. This is far less a figure when put with Lucknow sample, 110.3 and 110.9 for right and left hands respectively).

TABLE 3—SHOWING THE THREE PRINCIPAL INDICES IN RIGHT AND LEFT HAND SEPARATELY IN LUCKNOW, MORADABAD AND THE PRESENT AUTHOR'S SAMPLE.

		Furuhata's Index	Index of Pattern Intensity	Dankmeijer's Index	
Sen	Right hand	110.3	14.56	9.3)	Lucknow Criminals
	Left hand	110.9	15.13	8.9)	
	Both hands	111.8	14.85	9.1)	
Sen	Right hand	116.5	14.62	9.0)	Moradabad Males
	Left hand	106.1	14.32	9.0)	
	Both hands	111.2	14.53	9.0)	
Sen	Right hand	81.1	14.09	5.27)	Moradabad Females
	Left hand	96.6	14.35	6.4)	
	Both hands	88.4	14.47	6.4)	
Present author	Right hand	90.80	14.33	6.27)	U.P. Convicts
	Left hand	75.25	13.75	9.20)	
	Both hands	82.73	14.04	7.65)	

The Moradabad⁵ sample is puny (male sample only; the male and female samples cannot be pooled together as the sexual differences are well marked) but it cannot be neglected as it has been taken from one single section which is criminal in profession. As both the Lucknow and Moradadad samples are almost identical, the Moradad sample may be considered in the same light as the Lucknow sample. Taking into consideration the female sample from Moradabad the percentile frequency of arches in both the hands is quite close to the same frequency in my sample. It is interesting to note that the sexual differentiation (of course within the same group) which Sen notices fades away when my sample is compared with Moradabad female sample. Furu-hata's index (Table 2) is not much low in my sample than the Moradabad female sample in both the hands, but the left hands show greater difference. The arch/whorl index in the right hand in my sample is slightly higher than the same in Moradabad female sample but in the left it is much higher in the former. Again, the higher figure is noticed in the former for both the hands considered together.

The data from Reformatory School Alipore, Bengal, collected by Biswas⁶ (1945-46) is still smaller. He examined fifty delinquents and found the following frequencies: whorls 34.8, loops 60.2, arches 5.0. Frequency for whorls in this sample is far less and, therefore, the higher incidence of loops and arches than those in my sample is quite obvious. Such a difference may be due to inadequate size of the sample. The arch/whorl index (Table 4) 14.37 in Bengal sample is far higher than mine and Sen's sample as well, and even higher than the index of pattern intensity of its own which is only 12.98. Biswas noticed a striking difference between normal⁷ and criminal samples in this respect but on other grounds it is made clear that it does not hold good. In the normal one this index is only 5.29 which is quite near the arch/whorl index 4.43 observed by Schlaginhaufen⁸ in the normal Indians. I find arch/whorl index 7.65 in my sample higher than Biswas' normal sample with an index of 5.29 (Table 4), and intermediate between Sen's and Biswas' normal sample. Furuhashi's index in my sample is considerably higher than Biswas' criminal sample. However, all this may be due to the vagaries of the samples and, therefore, further investigation is needed.

TABLE 4—SHOWING THE THREE PRINCIPAL INDICES FOR BOTH THE HANDS CONSIDERED TOGETHER.

Author	Groups	Furuhashi's Index	Index of Pattern Intensity	Dankmeijer's Index
Abel	Eskimos	268.40	17.13	1.11
Abel	Chinese	110.99	14.94	3.88
Cummins	Eskimo	78.56	13.91	8.24
Furuse	Japanese	87.12	14.22	5.80
Hasebe	Japanese	81.34	14.08	6.42
Kubo	Koreans	87.12	14.22	5.80
Kubo	Chinese	106.23	14.90	2.76
Miyake	Koreans	103.36	14.60	6.30
Biswas	Criminals (Indians)	57.81	12.98	14.37
Biswas	Normal (Indians)	76.92	14.02	5.29
Schlaginhaufen	Normal (Indians)	58.32	13.41	4.43
Sen	Criminals (Lucknow)	111.8	14.85	9.1
Sen	Criminal Tribes	111.2	14.53	9.0
	(Moradabad Males)			
	Criminal Tribes	98.4	14.7	6.4
	(Moradabad Females)			
Tewari	Bhotias	107.91	14.85	4.4
Tewari	Rajis	89.54	14.51	3.14
Present author	Convicts (U.P.)	82.73	14.04	7.65

CONCLUSIONS

Dankmeijer⁹ (1938, 1947) in his studies points out that the world population may be grouped on the basis of arch/whorl index. He

gives a range of indices for various people showing that a very low value (<10) is found among the Mongoloids, between 10 and 20 among the South Europeans, and between 25 and 40 among the North Europeans. In this respect the values in my sample fall within the Mongoloid range, since the index is 7.65. The validity of Dankmeijer's suggestion is well supported by the studies of other workers (Table 4) such as Abel (Eskimos 1.11; Chinese 3.88), Cummins¹⁰ (Eskimo 8.24), Miyake (Koreans 6.30), Kubo (Koreans 5.80; Chinese 2.76), Furuse (Japanese 5.80), Hasebe (Japanese 6.42) and Tewari¹¹ (Bhotias 4.4; Rajis 3.14). Undoubtedly all these groups have strong Mongoloid element in them but the difficulty arises in the case of Sen's sample and in my own. Taking into account the anthropometric and serological studies by Majumdar¹², the Mongoloid element is nowhere noticeable in any of the castes included in the sample. In the population of U.P. in the plains-area, no Mongoloid element is noticeable except in the Tharus of the Tarai region. Not a single individual from this group is found to be included in my sample. So far as Sen's samples are concerned, no detailed information about the different groups is provided, yet if we observe closely that "all the 205 individuals.....belonged to several low castes and Muslims" there remains no doubt about the Lucknow sample. However, no indication is given for the Moradabad Criminal Tribes. It has, however, been made clear in studies¹³ elsewhere that they have no Mongoloid strain, and in their makeup, resemble more the Rajputs and Artisans.

The different caste-groups forming the sample collected by me are ethnically mixed types with more of purity retained in Brahmins, less in Rajputs, and as we go down the social ladder, more and more intermixture is noticeable. They show the influence of two main types—the Mediterranean and the Proto-australoid. The higher castes have more of Mediterranean and the lower castes more of Proto-australoid element. At least this much is clear that the Mongoloid strain never dominated the scene in U.P. to affect the population considered here. The ethnic status so far known does not indicate the Mongoloid infusion anywhere and therefore Dankmeijer's index, as far as this material suggests, does not hold good to show the ethnic affinity.

The percentage frequencies, whether or not, they behave like blood gene B has yet to be seen*.

However, the author is not unaware of the smallness of the data and, therefore, these implications may be subject to modifications or alterations on the basis of intensive researches.

* This point I propose to discuss in a separate paper wherein the castes included in the sample will be considered separately.

N. B. Different pattern frequencies for Eskimo and Chinese (Abel), Koreans and Chinese (Kubo), Koreans (Miyake) and Japanese (Furuse; Hasebe) have been taken as referred by Tewari and the indices calculated therefrom (*The Anthropologist*), and Schlaginhaufen as quoted by Biswas (*Science and Culture*).

ACKNOWLEDGEMENT

I am deeply indebted to my teacher Prof. D. N. Majumdar, who gave me the opportunity to work among the convicts and permitted me to use his data. My thanks are also due to Dr. C. R. Rao, Professor of Theoretical Statistics, Indian Statistical Institute, Calcutta, for permission to collect the data during my service tenure at the I.S.I.

REFERENCES

- ¹ Cummins, H. and Midlo, C. (1943). Finger Prints, Palms and Soles, An Introduction to Dermatoglyphics.
- ² Popham, R. E. (1953). A Comparative Analysis of Digital Patterns of Eskimo from Southampton Island. *Am. Jour. Phy. Anth.* Vol. 11, No. 2 pp. 203-214.
- ³ Renees, R. C. (1946). Symmetrical and Asymmetrical Occurrence of Papillary Patterns. *Am. Jour. Phy. Anth.* Vol. 4 No. 2, pp. 169-192.
- ^{4,5} Sen, D. K. (1955). Digital-Pattern Frequency Among Two Groups of Criminal Population in U.P. *The Eastern Anthropologist*, Vol 8, No. 2, pp. 79-83.
- ^{6,7,8} Biswas, P. C. (1945-46). Finger and Palm Prints of the Indian Juvenile Criminal, *Science and Culture* Vol. 11.
- ⁹ Dankmeijer, J. (1947). Finger Prints of African Pygmies and Negroes. *Am. Jour. Phy. Anth.* Vol. 5, No. 4, pp. 458-484.
- (1938). Some Anthropological Data on Finger Prints, *Am. Jour. Phy. Anth.* Vol. 23, pp. 377-388.
- ¹⁰ Cummins, H. and Hansen V. F. (1946). Dermatoglyphics in Eskimos of West Greenland. *Am. Jour. Phy. Anth.* Vol. 4, No. 3, pp. 395-401.
- ¹¹ Tewari, S. C. (1955). Finger Dermatoglyphics in Rajis of Askote (U.P.) *The Anthropologist* Vol. 1. No. 2, pp. 51. 54
- ¹² Majumdar, D. N. *Races and Cultures of India*. (New edition) 1958.
- ¹³ Mahalanobis, P. C. ; Majumdar, D. N., and Rao, C. R. (1949). *Sankhyā*, Vol. 9. (2 and 3).

A PLEA FOR 'CULTURAL DIMENSION' IN MEDICINE

R. S. KHARE

The practice of medicine in every form is a social activity. It involves the interaction between two or more people within a cultural system. These interacting people are not, however, simply the biological phenomenon since we cannot explain their acts solely in those terms. They are culturally conditioned individuals within a social system which determines the role, status and the kind of behaviour, participating individuals may take and prescribes the sets of values and orientations in terms of which the individuals concerned are motivated to act. Their biologically reactive symptoms "are invested with the meaning that the reacting person and others in his society have learned from their culture." The biological cause may be proved true through the objective demonstration of infection (e.g. micro-organisms) but the meaning given to the symptom may differ from culture to culture. Infestation by intestinal worms is regarded as a diseased condition by most of the educated people but among the people of Island of Yap, "it has been reported that they are considered necessary part of the digestive system" and people "worry only if their children do not have them". Not only this, on the evidence of studies in favour, cultural meanings and reactions "can produce marked clinical changes both in structure and function of various organ systems".¹

Thus culture is a complex media for interpretation and action of various life events. It is a man-made part of the environment providing for every individual readymade and tested solution for vital life problems and enables in any social situation, one while interacting with other people, to understand and anticipate the behaviour of other people and in turn to know how to behave ourselves. It thus provides leads or tips to meet the life events. It is a vast complex not of things only but ideas, attitudes, values, belief and expectations towards things ponderable and imponderable both.

In medical practice, "the outcome of any interactive situation is a function of the attitudes, values, cognitions and expectations . . . the participants bring to the situation and of the result they all expect out of it." The eventuated doctor-patient relationship situation is determined not only by what the physician has to contribute to the situation, but also what the patient brings. The latter is not, as is sometimes supposed, a passive and completely receptive partner in

¹ Vide : Voodoo Death, appendix II.

the relationship. He has his own ideas, values and orientations, in terms of which he has already viewed what is wrong with him and could and even should be done about it. It is the patient who makes first assessment of relative severity of his ailment. Thus the first diagnosis, interpretation and relief measures or curative treatments come from a body of beliefs and practices, customs and laws and native ideas intended to preserve and promote "health" and alleviate, cure or prevent whatever is called "illness", which the patient has learned in his society. This body of knowledge may neither have emphases on scientific explanations of cause and effect relationship in illness or recovery nor may have been grown, dispersed and practiced by "legitimate professionals" in a medical hospital or clinical laboratory, but, however, it is the first and very often last resort for the people of society to turn to. They get maximum satisfaction from such treatment though ridiculous for a medical man. Such a body of knowledge about medicine is deeply rooted in a long and arduous past having been tested and retested by the experience of many generations. It is tenaciously held by the people of a society in which it has developed. The point to remember is that culture dies hard. Mead and Paul have amply shown this in their works. (1953, pp 46-48, 1955, Introduction, Summary). It has time and again been realized by the proper studies in the field of medicine and elsewhere, that there could possibly be nowhere an easy switch-over to a newly introduced system of thought and practice. This is greatly because cultural attitudes, values, orientations and meanings attached to life events vary considerably between what is being introduced and what the subjects under consideration already adhere to. Herein comes the point to become aware of the content and meaning of such medical knowledge that the patient brings to the patient-physician relationship.

However, as far as the attitude of medical people towards folk medicine is concerned, it might have even been one of 'attack' by means of 'exposure' and 'ridicule' or try to 'ignore' simply because it has no apparent relation and effect on their diagnosis and treatment. But the practical studies on both clinic and public level have amply shown the situation to be otherwise. Studies of primitive medicine show beyond doubt that they are a 'purposeful' and 'co-ordinate' part of a culture and are the 'most logical consequence' of the circumstances under which the isolated man was placed. It has function, reason and coherence. Ashley-Montague calls it 'perfectly rational system' of medicine and pleads for respect and understanding which are due. However, two-way interchange between folk and scientific medicine is not wanting. Remedies having long history of folk use (e.g. opium, quinine, cocaine etc.) have been analysed, tested and ultimately utilised in scientific medicine.

Their ideas about causation of diseases may be wrong from the standpoint of a medical man, or they may contain a grain of truth here or there, "but given certain spiritistic concepts, the body of medical practice follows with a degree of consistency that we can only hope someday to equal." Thus it becomes necessary for smooth communication between health personnel and public or doctor and patient only "to recognize that such beliefs and practices exist" having meaning and function for the people, and not that these be accepted as scientifically valid.

Medical personnel rarely have any systematic knowledge about their own folk medicine or of others and may have no sharp awareness of the extent such beliefs and practices have permeated to influence behaviour of people with respect to interpretation of illness and their responses to their symptoms and to physician's therapeutic measures. Such a thing has elsewhere been termed "trained-incompetence", arising out of more and more specialisation in the study of medicine. It is a gap which is responsible for ineffective co-operation between doctor and patient in a medical ward. Both view the situation in their own terms of learning which are 'widely apart' in their nature and content. These beliefs and practices become so problematic in a radically different cultural environment that hostility, distrust, and suspicion about the intention and service of medical man arises due to serious and seemingly un-bridgable differences, stemming out of their expectation, interpretations and actions. The relevant and necessary questions about the history of disease, time taking and long laboratory procedures for the establishment of diagnosis and strictly-to-be-followed treatment, are necessary for a physician but equally teasing, unfamiliar and meaningless (since their culture does not give any meaning to such things) and even contrary for the people under consideration. This has been the bottleneck in the practice of Public Health Programmes and wards alike. It is there the innovations are resisted and not accepted even after long concentrated efforts, and large amount of money and time and effort thus goes to waste.

Thus the solution of such a problem lies clearly in the recognition and appreciation of the nature and content of the folk medicine under consideration by the medical personnel. In turn, to study the nature and content of such folk medicine, either the concerned should systematically study with a reference to total life way of the people or take help from those already expert in the area.

Anthropology with its specific methodological tools has in recent years serviced medical practice in public and clinic alike and it is gratifying to record that "the relations between anthropology and medicine are becoming increasingly more close and there can be little doubt that this trend will continue . . ." needless to say, the

influence will not be altogether sided, for anthropology has much to gain from medicine as the latter has from anthropology”.

Below are quoted certain interesting cases from various authors which explain the extent to which cultural dimension is relevant along with the other two, viz., physiology and psychological dimensions for the doctor to know the patient ‘as he really exists in the round”.

APPENDIX I

Benjamin D. Paul cited an example from the note book of Dr. Cassel, a physician working among the native people of South Africa to bring preventive and therapeutic medicine to the people. He was one day called in to diagnose an old man having an apical cavity in one lung. It was a severe case of Tuberculosis and the prognosis was poor. He called the patient to his clinic for drugs. Instead, the patient called in a local witch-doctor who diagnosed this malady as due to witchcraft by his only son and daughter-in-law. Following the advice of the witch-doctor, the old man drove away the couple from his house and after three or four days he was seen up and doing in his fields. This surprised the doctor and prompted him to go deep into the history of the case. It was then revealed that once this old man was the richest man in the area, having erected the best house in the locality and lived a good life; but his only son, always dependent on his father’s money, was never a well-to-do person. Once when his daughter in his old age came to live with him by purchasing from her own money some cattles and goats and building a hut, the young man always asserted his right over such a property and with the help of the opinion of other villagers, he succeeded in driving away his sister who traditionally had no right to stay with his father. In the meantime, he also married an undesirable girl without the consent of his father, who came to blows with her sister-in-law. Eventually, the daughter-in-law once committed one of the rudest of social lapses by spitting in the eyes of the old man. At this time he became ill, followed by the doctor and witch doctor. Of the two diagnosis, Dr. Cassel remarks that he had ‘missed all the psychological and cultural factors” while the witch doctor had diagnosed these two and not a hole in the lung. “Of the two,” he says, “I should imagine that her diagnosis is more complete than mine.”

APPENDIX II

The phenomenon of *Voodoo Death* and its explanations offered at cultural and recently physiological levels, make it considerably important. It is an evidence in the point to support the view that man is not merely a biological phenomenon. The death issues

inevitably as the result of breach of taboo by a member of the society. Taboo is described by H. Webster as one "unmatched by that of any other prohibition. There is no reflection on it, no reasoning about it, no discussion of it." From the moment of revelation about the breach of taboo, the patient wastes away and in a short time dies. One American anthropologist W. Cannon offered some physiological explanation for it, while Selye illuminated further the psychosomatic relations involved. There is strong evidence that death in such cases is due to marked decrease in blood pressure similar to that seen in wound shock. Lowering of blood pressure is set to be brought about by sympathicoadrenal system. Deterioration in heart and nerve centres reduce the volume and upset normal concentration of blood in circulation which damages the organs responsible for keeping it up. The arterioles also constrict producing a dangerous fall in oxygen supply of the capillaries of the internal organs. Their thin walls when in short of oxygen supply become more and more permeable to the fluid part of the blood i.e., plasma escapes in the perivascular spaces and leaves high concentration of blood corpuscles leading to the death of the victim scarcely distinguishable from time wound shock.

APPENDIX III

Western medical and hospitable care was resisted in Burma and is reported by Mead⁷. In spite of the facilities at the disposal of Burmese people and the disintegration of local medical practices due to impact of western medicine, "the villagers will not seek out western medicine except as a last resort." Hospitalisation for them amounted to "violation" of tenaciously held cultural traditions and ordeal if they had no other alternative. On "duty days"—falling four times a month—they have to see that under no circumstances they sleep "on a high place" and they had no one over their heads (i.e., they had no second floors) which are items of usual hospital set up. Since this set up ran contrary to the cultural practices of the people, the trouble arose.

REFERENCES

- Cannon, W. B. "Voodoo Death" *American Anthropologist*, 1944 : pp. 169-181, 1942.
 Foster, G. M. "Working with People of Different Cultural Background" Vol. 13, No. 14, January, 56 of *California's Health*, State Department of Public Health.
 Herskovits, M. J. "Man and His Work" New York, KNOPF 1948, pp. 17-18.
 Kroeber, A. L. ed., "Anthropology Today" Chicago Press, selected paper 'Anthropology in Medicine'—W. Caudill.
 Majumdar, D. N. "Affairs of a Tribe", *Universal* 1950 pp. 191-92.
 Montagu, M. F. Ashley "Anthropology and Human Nature" *An Extending Horizons Book* 1957, pp. 41-48, 124-297.

- Mead, Margaret ed. *Cultural Patterns and Technical Change* Paris UNESCO, Mentor Book 1953, pp. 46-48.
- Paul, B. D. ed. *"Health, Culture and Community"* New York, Russell Sage Foundation 1955. Introduction.
- Paul, B. D. "The Role of Beliefs and Customs in Sanitation Programme" Paper report Nov. 15, 1957.
- Paul, B. D. "Social Science in Public Health" Reprint from "American Journal of Public Health" Vol. 46, No. 11, Nov. 1956.
- Paul, B. D. "Medicines Third Dimension" Reprint from the Journal of the National Medical Association, Sept. 1956, Vol. 40, No. 5, pp. 323-325.
- Saunders, L. "Cultural Differences and Medical Care" New York, Russell Sage Foundation, 1954.
- Saunders, L. "Cultural Factors in Public Health Work" Paper prepared for Annual Meeting of Public Health Nurses of Wyoming, Cheyenne, Oct 20, '55.
- Saunders, L. and Hewes G. W. "Folk Medicine and Medical Practice" Reprint from the Journal of Medical Education Sept. '53 Vol. 28, No. 9.

A FEW COMMENTS ON SOME OF RADCLIFFE-BROWN'S BASIC CONCEPTS¹

GOPALA SARANA

I do realise it now that I was not very modest in saying that 'I do not always approve of all the formulations of Professor Radcliffe-Brown' (Sarana, 1957 : 12). The actual fact is that, in spite of my best efforts, I have failed to reconcile some of his earlier pronouncements with his later assertions on the same topics. What is going to appear in the lines to follow may seem to belie my own previous affirmation, in criticism of Prof. Murdock's stand, that Radcliffe-Brown's greatness lies in his consistent line of thinking and argumentation 'to the last year of his life'. I still stand by my affirmation and what I am going to say now does not in the least lessen my respect and admiration for that 'master-mind'.

The publishers of his posthumous book, *Method in Social Anthropology* : 'a selection of his (Prof. Radcliffe-Brown's) major papers and five hitherto unpublished chapters of a book on which he was working when his death in 1955 cut short its completion', describe him as 'the founder of the scientific study of social anthropology'. It is really very ironical to find 'the founder' himself fumbling about the origin in historical, not in Darwinian, sense of social anthropology, 'scientific' or otherwise. In his posthumous work, we find him writing that 'if we want a date we can put 1870 as being that of the beginning of social anthropology' (1958 : 156). More correct would be to say, as he did in his 1944 essay, that it was then that the term 'social anthropology' came into use for the first time. Talking about the aim of social anthropology he declares that it has 'always been to apply the inductive method of the natural sciences to the study of human society, its institutions and its evolution' (1958 : 96). It should not be forgotten that that was the era of McLennan, Maine, Morgan and Tylor. These early stalwarts primarily concerned themselves with, what Radcliffe-Brown has himself called, "the comparative studies of the *arm-chair*" type. They were interested in 'survivals'. The last two particularly busied themselves in delineating their respective patterns of 'unilinear evolution'. In England it was Haddon, and in the United States Franz Boas, who laid down the foundation of 'systematic ethnographic field studies carried out by trained anthropologists using scientific methods (inductive method of the natural sciences) of observation' at the fag-end of the last century. So it is

¹ A Review Article of *Method in Social Anthropology*, ed. by M. N. Srinivas, Chicago University Press, Chicago, 1958, pp. xxi+189, price \$ 3.75.

evident that even if social anthropology existed as a separate discipline before 1898, at that time it did not aim 'to apply the inductive method of natural sciences' in its study. Radcliffe-Brown himself bears testimony to the fact "that throughout the whole of the nineteenth century there was little distinction between ethnology and social anthropology" (written in 1931 : reprinted in 1958 : 50).

The one thing about which Radcliffe-Brown was not at all hesitant 'to the last year of his life' was the dichotomy between enthology and social anthropology—but, I am afraid, not about the bases of this dichotomy. In 1923 he proposed to "confine the use of the term ethnology to the *study of culture* by the method of historical reconstruction . . . , and to use the term social anthropology as the name of the study that seeks to formulate laws that underlie the *phenomena of culture*" (1958 : 8). [Italics mine]. Here we are told that the methods of ethnology and social anthropology were different. But the 'problems' which they had to tackle were, surprisingly, the same because both were to concern themselves with culture. In his last formulation on the topic, while ethnology is assigned the task of dealing with the "problems of racial and *cultural* classification," social anthropology is "to make use of knowledge about primitive *societies* to establish valid and significant generalizations about *social phenomena*" (1958 : 137), [Italics mine]. The distinction made between 'social' and 'cultural' is not only deliberate but is not of 'minor importance' because 'it leads to two different kinds of study' between which 'it is hardly possible to obtain agreement in the formulation of problems' (written in 1940 ; in 1952 : 189). Should Radcliffe-Brown be singled out for criticism for such a self-contradiction? There are many others who are guilty of this type of commission. Lowie had earlier proposed the 'shreds and patches' concept of culture which he tried to white-wash later on in the name of 'disillusionment after World War I' (1921 : viii). The author of the celebrated 'Patterns of Culture' and the advocate of a brilliant theory of culture integration, Ruth Benedict, was once of the view that since man's culture was built out of disparate elements we would be unable to see our cultural life objectively, "until we have abandoned the superstition that the result is an organism functionally interrelated" (1923 : 84). Of late, Prof. Evans-Pritchard has also joined this select band of anthropologists by his swing from right to left or left to right—whatever you choose to call it—in connection with the role of applied anthropology. Today, (at least it is his latest expressed view), he is quite definite that "it is not an anthropologist's task, however, to suggest what policy should be adopted" (1951 : 119). In his previous pronouncement it was he who could not see "what objection there can be to an anthropologist advocating a policy or helping frame an administrative measure in the light of present anthropological knowledge" (1946 : 92).

In 1940, when Radcliffe-Brown for the first time posited a meticulous distinction between the studies of societies and cultures, he could not make deliberations upon the "relation of the study of social structure to the study of culture" (1952 : 204), because "there is (was) no time on this (that) occasion." In 1923 he quoted Tylor's classic definition of culture or civilization with silent approval. Knowingly or unknowingly, he continued using the term 'culture' in the same sense in which it is generally used in the anthropological literature till he defined it in his own terms in the Introduction to his *Structure and Function in Primitive Society* (1952). It is interesting to note that his definition of ethnology, even after 1952, almost invariably includes 'culture' or 'cultural' used in the sense other than that he expounded in 1952. Reference to his above-mentioned concept of culture is important in another sense also. He defines it as the process of cultivation and acquisition of knowledge, skill, ideas, etc. (1952 : 4). Earlier on the same page as well as on the preceding one he disapproved of 'others' attempt to allocate 'societies' and/or 'cultures' to social anthropology as 'the concrete, observable, phenomenal reality' to be studied. It is so because the reality which social anthropology is concerned with is 'not any sort of entity but a process' while 'others' conceive of 'societies' and/or 'cultures' as 'some kind of discrete entity'. It must never be lost sight of that Radcliffe-Brown has himself, more than once, defined social anthropology as 'the study of human society' or 'the investigation of the nature of human society'. It is sad that he has not pointed out whether in these instances he conceived society as a process or as an entity. If he always conceived society as a process there was no sense in omitting it specifically from the definition of social anthropology in 1952. And if he always thought of society as an entity, Radcliffe-Brown is guilty of a surprising inconsistency and self-contradiction.

The problem of the definition of social anthropology has been discussed by me elsewhere. (Sarana, 1957). But a few remarks here about the relationship between cultural anthropology and social anthropology will not be altogether out of place. Radcliffe-Brown almost always avoided making any reference to the term 'cultural' anthropology, as if he did not recognise that usage. In 1923 he was perhaps unconsciously, equating the two terms when he complained of the lack of discrimination in the use of "the names ethnology and social or cultural anthropology" (1958 : 3). It is interesting to note that in 1920's the then American anthropologists used ethnology and cultural anthropology interchangeably. Sapir used to talk about the historical approach of 'cultural anthropology' under the title 'Ethnology as an Historical Science'. Even in the thirties Radin and Lowie preferred to use ethnology, or its derivative, in the titles of their celebrated books [Radin (1933): *The Method and Theory of Ethnology*;

Lowie (1937): *The History of Ethnological Theory*]. Today the bulk of the American anthropologists will refuse to be called ethnologists. Cultural anthropology is the 'generic' term for them which they keep distinct from ethnology. In 1953 Kroeber showed his readiness "to abandon this baby (ethnology) to the wolves—to a premature fate or to a scent death as one may see it" (Tax *et al.*, 1953 : 366). In 1931 Radcliffe-Brown equated ethnology with culture history (1958 : 54). This might have been one of the many reasons for the abandonment of the term ethnology in favour of cultural anthropology. The only people who prided in being called culture historians or ethnologists, even after the severe criticism of the diffusionist approaches in the twenties were those belonging to the then famous *Kulturhistorische Schule*. The changed strategy under the leadership of Wilhelm Koppers has stood them in good stead and has created a novel respectability for that.

Marett—then Reader in Social Anthropology at Oxford—proposed a basic dichotomy between 'physical anthropology' and 'cultural anthropology'. The latter included what is today called Social Anthropology by the Britishers. In the United States even today there are some anthropologists who construe social anthropology as 'an enclave set apart within cultural anthropology.' There are still others who are 'startled' by their own conclusion that those who use society or social structure as their basic category are not anthropologists but 'professionals of another category'. We do not want to reenter this controversial field. But Radcliffe-Brown's definition of culture is so narrow that it cannot form a basis of differentiation between the British social anthropology and the American cultural anthropology. The main point of distinction between ethnology and social anthropology has been that of method. Almost all the American anthropologists accept the inevitability of inductive approach for anthropology. There will be hardly one anthropologist in the States who does not look at a 'culture as an integrated system'. And, of late, our American colleagues have started accepting the value and utility of comparative method as well. Yet they differ from the British social anthropologists. Whether they bother their heads with temporal sequence or worry themselves about descriptive integration as a class, they believe in the utility of an historical approach in the study of the non-literates. Another point of difference with the British social anthropologists can be best expressed in Prof. Kroeber's words: "I would be inclined to see a more solid and substantive contribution in Radcliffe-Brown's own formulations of time-and-place-bound patterns, as for Australia, than in his timeless generalisations or laws" (in Tax *et al.*, 1953 : 365).

Very legitimately, quite correctly and coherently did Radcliffe-Brown base his dichotomy between ethnology and social anthropology on

methodological grounds. It has already been shown that he fumbled whenever he tried to base it on the subject matter. In this dichotomy there are a few constants and many variables. In Radcliffe-Brown's writings, the method of ethnology throughout remained 'historical'—with a few exception when it became 'pseudo-historical' or that of 'conjectural' history. From the methodological angle he always viewed social anthropology as, what he called, a 'generalising' science which aimed at discovering universal 'laws' derived by comparing diverse societies. In other words, he aimed at discovering the fundamental similarities underlying the superficial dissimilarities. This is about the gist of what he said on this topic. It is undoubtedly a great contribution. But the above gist is the uniformity underlying the superficial variability of terminology in Radcliffe-Brown's writings. The terms which he used can be best summarised in the following equation:

Ethnology : Social Anthropology :: The 'Historical' method :
 The 'Inductive' Method (1923) [1958 : 25].
 The 'Functional' method (1929) [1958 : 40]
 The 'Functional, Generalizing, and Sociological' method
 or the 'Generalising' method (1931) [1958 : 65, 49]
 The 'Functional' study or method (1935) [1952 : 186].
 The 'Comparative' study or method (1940) [1952 : 194]
 The method of 'Structural or Sociological analysis'
 (1941) [1952 : 49 and 87].
 The 'Experimental' method (1945) [1952 : 154].
 A 'Comparative' method (1949) [1952 : 113-14].
 The Method of 'Comparison and Analysis' (1950 : 2).
 The 'Comparative' method (1951) [1958 : 127].
 The 'Experimental' method [1958 : 141-42].

Only a cursory glance will indicate that all these terms do not signify the same concept. Let us take an example. The functional and comparative methods, in their details, are not only different but, in a way, they are mutually exclusive. There seems to be much truth in the contention of the French sociologists that "two customs which seem to be similar may have different functions in the societies in which they exist, and are then not properly comparable" (Radcliffe-Brown, 1958 : 162).

"Two persons are kin", wrote Radcliffe-Brown, "when one is descended from the other. . . . or when they are both descended from a common ancestor" (1950 : 4). There is some sort of a kinship bond between social anthropology and, what Radcliffe-Brown calls, 'comparative sociology'. Since that is not an outcome of a wedlock between the two it ought to be covered by the above definition

or an extension of that. It is really very unfortunate that one of the greatest authorities on kinship studies is not only not precise about this relationship but has made a mess of it. In 1931 when he was pleading for the recognition of 'a generalising science of culture or society' he pointed out that "out of social anthropology there has grown a study which I am going to speak of as comparative sociology" (1958 :55). Here Social Anthropology is viewed as 'pater' or 'genitor' of Comparative Sociology. In 1940 he bracketted the two in the following words : "I am quite willing to call the subject (social anthropology as the theoretical natural science of human society) 'comparative sociology', if anyone so wishes" (1952:189). But in 1952 Radcliffe-Brown himself 'wished' to bestow a sort of 'foster-fatherhood' upon his 'comparative sociology' (1952 :3). Very rightly in his last statement on the topic he is much more restrained. He does not say that 'comparative sociology' exists today. He only hopes that "if and when this comparative sociology ever becomes an established subject' social anthropology will be incorporated in it" (1958 : 141). Our view is that the very use of the term 'comparative sociology' was misconceived and was unfortunate. It has given rise to a lot of misunderstanding.

Social structure is Radcliffe-Brown's key concept. No attempt is being made here to discuss that in detail. But a few remarks will not be outside the scope of the present paper. To a very great extent we owe 'a more precise idea of the meaning' of social structure to Radcliffe-Brown. The term was, no doubt, in use in the anthropological literature but only as interchangeable with social organisation or even society. He frequently used the term 'society' in his definition of social anthropology and held that "the content or subject-matter of social anthropology is (was) the whole of social life of a people in all its aspects" (1952:185). The study of social structure was declared to be only a part of that totality. In the last twenty years of his life he was giving final shape to his concept of social structure. But he does not tell us as to whether he conceived of it as the structure of society or as something else. In 1929 he had written that he regarded "society as consisting of certain human beings grouped in a social structure" (1952 :129). In 1935 he put forward his theory of 'structural functionalism'. Through his statement that "organism is *not* itself the structure ; . . the organism *has* a structure" (1952 :179) he was well on the way of making a very remarkable contribution to the social science terminology and concept. But it is regrettable that he himself stopped referring to it in his later writings. His thought developed in contravention to his own previous stand. When he started regarding "as a part of social structure all social relations of person to person", it was obvious that the organism had itself become the structure.

From the time Radcliffe-Brown started advocating the primacy of social structure he had practically abandoned using the term social organisation. But in the Introduction to his 1952 book, he made a maiden attempt to bring about a hair-splitting distinction between the meanings of the two terms. He was immediately caught on the wrong foot. He conceived of social structure not as an abstraction but as a reality. In this connection he had once written: "Social structures are just as real as are individual organisms" (written in 1940; 1952: 190). In that very year he pointed out that one part of social structure was made by dyadic (person to person) relations. Under the second part is included "the differentiation of individuals and of classes by their social *role*" (1952: 191) [*Italics mine*]. It is all the more interesting to note that no differentiation was made at that time between the differentials of social positions and social roles. But the two have not only been distinguished from one another but have been made the basis of distinction between organisation and structure. In 1952 Radcliffe-Brown summed up the position thus: "we may say that when we are dealing with a structural system we are concerned with a system of social *positions*, while in an organisation we deal with a system of *roles*" (1952: 11). Such an obvious omission was not expected of one who had the reputation of writing 'with great care, handling words like precious stones'.

I should better clarify my stand a bit more. My comments are apt to be misunderstood if not viewed in their proper perspective. Structural continuity, in Radcliffe-Brown's terminology, is maintained by a life-process enlivened by the functions of the parts (i.e. the organs of the organism). Function is the part played and the contribution made by 'the activities of the constituent units'. The omissions mentioned above may be compared with the scars of some dried-up wounds on some constituent units (parts) of the organism. But they do not seem to affect the activities of those constituent units; and as a consequence neither do they modify their function nor do they alter life-process. Life-process in Radcliffe-Brown's writings, as far as I have been able to understand him, is his contribution to anthropological methodology with which he stirred such pioneers of American anthropology as Linton, Margaret Mead and Redfield, to mention only a few, in the thirties. I wonder if any anthropologist has preceded Radcliffe-Brown in pointing out that 'comparison in this science has very largely to take the place of experiment in other sciences' (written in 1931; 1958: 76). This forecast has come true not only for anthropology but for all the social sciences which believe in and use experimental method. Moreover, what we know today as social research process for experimental social sciences was formulated in admirable terms by Radcliffe-Brown about thirty-six years ago, i.e., in 1923. Calling it 'the proper method of generalising sciences'

in 1931 he opined that "the process of making a preliminary study of the known facts, the formulation of hypothetical generalisations, the testing of these hypotheses by a further examination of a specific series of data, the modification of the original hypotheses in the light of the new data, the further testing of the hypotheses in their new and possibly more complex or more definite form, and so on. Only in some such way as this, in default of the possibility of actual experiment, can we build up a science of human society" (1958: 71). I have no hesitation in saying that substantive contributions of this sort far outweigh Radcliffe-Brown's omissible omissions.

REFERENCES

- Benedict, Ruth, 1923, in *Memoirs, American Anthropological Association*, 29.
 Evans-Pritchard, E. E., 1946, "Applied Anthropology", *Africa*, Vol. XVI, pp. 92-8.
 —, 1951, *Social Anthropology*, Cohen and West Ltd., London.
 Lowie, R. H., 1921, *Primitive Society*, Routledge and Kegan Paul, London, Third Impression, 1949.
 Radcliffe-Brown, A. R. 1952a, *Historical Note on British Social Anthropology*, *American Anthropologist*, Vol. 54, No. 2, Part I.
 —, 1952b, *Structure and Function in Primitive Society*, Cohen and West Ltd., London.
 —, 1958, *Method in Social Anthropology*, (edited by) M. N. Srinivas, The University of Chicago Press, Chicago.
 Radcliffe-Brown, A. R., and Forde, Daryll, (ed.), 1950, *African Systems of Kinship and Marriage*, Oxford University Press, London.
 Sarana, Gopala., 1957, "British Social Anthropology and its American Appraisal", *Eastern Anthropologist*, Vol. XI, No. 1.
 Tax, Sol., et al., (ed), 1953, *An Appraisal of Anthropology Today*, The University of Chicago Press, Chicago.

RESEARCH NEWS AND VIEWS

The Anthropology and Archaeology Section of the 46th Indian Science Congress held at Delhi in January 1959, was presided over by Sri V. D. Krishnaswami, Deputy Director of Archaeology, Government of India. Below is given a summary of Sri Krishnaswamy's presidential address on the *Neolithic Pattern of India*.

We have in India, a neolithic pattern showing four types of regional Neolithic Cultures which may be designated A, B, C and D. The Neolithic culture A is chalcolithic in character and is restricted to western Madhya Pradesh and Western India co-extensive with the Deccan trap region. This complex is characterised by parallel-sided ribbon flake blades, painted pottery and copper artefacts of post-Harappan facies of Western origin. As it comes closer to the Karnatak region in the South it absorbs the polished stone axes of the second Neolithic Culture B spread all over the South. The urban parallel-blade industry is further galvanised by the earlier hunting type of microlithic phase, characterised by the lunates and trapezes with steep retouch which was changing itself into the neolithic as we have seen at Gujarat. This glavanisation has become very patent in the blunted backed blades, that persist side by side with ribbon flakes, as it cannot be explained in any other manner. It is interesting to note that such an impact did not take place in the later Harappan sites of the Kathiawar peninsula, just outside the (chalcolithic) Neolithic cultural regions of Central and Western India.

The Neolithic Culture B is centred in Karnatak in South India away from the Deccan trap region. It is characterised by the pointed butt type of axe which apparently originated in the region itself. In its earlier phase, it is related to the post palaeolithic flaking technique, arising in a microlithic milieu. Latterly it absorbed the post-Harappan ribbon flake and the painted pottery and copper celt traits of Culture A.

Culture C is restricted to Eastern India where we see three phases overlapping each other. The earliest phase is the rounded butt axe showing chipping, grinding and polishing. It does not show any relationship with the pre-existing microlithic culture of the region as in the Karnatak and in Central and Western India. The second phase is characterised by faceted and square-cut tools involving a metallic technique of manufacture. Closely linked with this is the third phase of the copper hoards of the Gangetic basin and of Gungeria in Madhya Pradesh with tools similar to the types of the second phase. The origin of the first two phases has to be located in the South East Asia in Indo-China and Malaya in real archaeological complexes. The first phase shows a very great antiquity in South East Asia and therefore the rounded butt type of axe has spread uniformly from South

East Asia to Chota-Nagpur. The second phase characterised by faceted square-cut tools shows an irregular distribution in Eastern India. In Assam we have the faceted tools of Malaya along with shouldered hoe. In Bengal, Bihar and Orissa, the faceted type of tool is absent, but the shouldered hoe, the bar-celt and the rectangular chisel with quadrangular section are similar to those of Malaya thus showing a maritime influence and even indicating the introduction into India of the plough for rice cultivation. This phase was closely followed by the copper hoards of the Gangetic basin and Gungeria which exhibit, in metal, the same type of tools as in stone (including the bar-celt found in Chota-Nagpur). This phase seems to have come as a second wave round about 4th century B.C. when N.B.P. and black-and-red wares were well established in India and therefore this wave is post-Aryan. Province C has not materially affected Province B in the South except for the sporadic distribution of the regular shouldered hoe in a few places in the South.

The picture is largely speculative. But one thing is clear that without being unduly influenced by a '*mirage orientale*' for the neolithic origin of India as stated by Worman in 1949 we have evolved our own Neolithic Pattern of India, partly influenced by a West Asian neolithic culture, partly by the Harappan Culture, partly by the Far Eastern neolithic culture and partly of autochthonous origin. Further, excavations in the four different regions and especially in Eastern India will make us understand better the new pattern that is beginning to appear as a result of the brilliant work done by Sankalia, Subbarao, Sen, Ray and the officers of the Union Department of Archaeology and the admirable contribution by Dani in East Pakistan.

Antiquity, Vol. XXXII, (No. 128, December, 1958) carries an article by Geoffrey Bibby on the '*Ancient Indian Style*' Seals from Bahrein. These seals were dug out on the island of Bahrein in the Persian Gulf by a Danish Archaeological Expedition sent out (in 1953) by the Prehistoric Museum of Aarhus, under the leadership of Professor Glob of Aarhus. Among the more significant of the objects discovered by Expedition in Bahrain are a number of circular stamp seals. These, according to the author, who is on the staff of the Aarhus Museum and who quotes the authority Professor C. J. Gadd, are of a style similar to that of the famous Indus valley seals.

R. Ruggles Gates's article on "Studies in Race Crossing", VIII-Japanese War Children, published in *Z. Morph. Anthropol.*, 49, 2,

129-147 ; Stuttgart, September 1958, is an interesting and stimulating one from the point of view of inheritance studies.

The author has made observations on 122 children whose mothers were Japanese and fathers were American soldiers. Out of 122 children, 67 male and 25 female children were of white fathers and 15 male and 17 female children of Negroid fathers. The children of white fathers were white skinned, whereas the children of Negroid fathers were yellowish or brown skinned.

The author suggests that the epicanthus and horizontal eye-folds are independent in expression involving a very small number of genes. Children of Europoid fathers have straight hair, whereas the children of Negroid fathers have very curly or kinky hair. Mean C.I. of all the children of Europoid and Negroid fathers is over 80, indicating the influence of brachycephalic mother. The greater frequency of Negroid small and lobeless ear is absent in the coloured children of Negroid fathers and the presence of medium or big lobe in Europoid children also suggests the inheritance of the size of ear lobe.

On the basis of the evidence afforded by these racial differences the author opines that a very small number of genes are involved and the true phenomenon of dominance is not perceptible in these crosses.

In a paper on "The African Pygmies" in *Acta Geneticae Medicae et Gemellologiae*, Vol VII, April 1958, Prof. R. Ruggles Gates expressed some new views regarding the origin and relationship of the African Pygmies. This paper is based on a study of a colony at Bundibugyo, Western Uganda and it has been compared with Bwamba—a tribe at Bundibugyo, found to be Pygmoids with "relatively recent hybrid origin". The author has given accounts of "early as well as later European contacts with Pygmy tribes and of certain groups taken to Europe".

As pointed out by his opening lines, he has also accounted for "environment in the widest sense, involving climate and food" by pointing out "unique symbiotic relationships" between Pygmies and Negroes. He has produced possible evidence of Singa fossil skull as an evidence for the extension of such relationship, involving exchange of meat with Bananas, in the past.

He has sought the relation of a pan-tropical disease called *Kwashiorkor* in Pygmies, apparently to "protein deficiency, and especially from a diet of bananas at the time of weaning". As far as the state of health of Pygmy teeth and jaws are concerned, he remarks that these "are probably the most pathological to be found in any human race".

Accounting for race mixture with Negroes, Prof. Gates has to say that Pygmies "remain pure except for occasional unofficial mixing",

while frequently Forest Negroes marry a Pygmy wife, and children born to these become 'Negro', F_1 hybrids show intermediate range in stature and other characters and through the back cross to the Negro, Pygmies "are thus absorbed into that race". He remarks that "a small number of genes, without dominance, for each racial character-difference is probably involved". In studying skin-colour in Pygmies, Baambas, Hottentots and Negroes, he shows the applicability of Gates chart of skin-colour, 'derived only from Negro-White crosses to the other African races such as above. Tracing out certain evolutionary relationships between Pygmies, Negroes and Bushmen, he says that "the Pygmies are of ancient origin with mahogany skin and hairy body", while Negroes due to acquisition of black skin have become hairless by one or more loss mutations. "The common ancestor of Pygmy and Negro would be a tall race with mahogany skin and hairy body of Pygmies. This race may now be extinct."

Gates accounts for Pygmy dwarfing as "apparently the result of a single gene mutation" of achondroplastic type and he thinks that this type of mutation "has probably been occurring like melanism in moths, for thousands of years". Such inbreeding of heterozygous dwarfs would "quickly establish a tribe more or less homozygous for the dwarf gene". With exception of Bushmen, he holds, "Pygmies are then the oldest living race in Africa".

He has also accounted blood groups, and sickling among Pygmies and has considered its relation to other African races. An account of anthropometrical measurements and particularly to the Pygmy skull, show cephalic index 'higher than that of Negro in accordance with small stature' approaching brachycephaly. The Pentagonoid shape of skulls of Pygmy suggests "a common Bookopoid origin of Pygmies and Bushmen".

He also concludes from limb, body and skeleton measurements that "we have a form of achondroplastic dwarfing of mutational origin" and Pygmy is. . . . but normal".

Prof. J. G. D. Clark, in a long paper entitled the 'Blade and Trapeze Industries of the European Stone Age' published in the *Proceedings of the Prehistoric Society* (Cambridge) for 1958 (N. S., Volume XXIV), has analysed and discussed the flint industries characterized by trapezes produced from blades. He has drawn a basic distinction between the 'relatively long' and 'relatively short' sections of the parent blade. The retention of the sharp edges of the parallel-sided blade, from which it is manufactured, is the essence of trapeziform microliths, and it is upon the length of sides in relation to its width that he has drawn the distinction. A further classification, upon the basis of the shape,

into symmetrical, asymmetrical and right angled ones has also been attempted to illustrate the outstanding types.

In this study Prof. Clark has taken into account the blade and trapeze industries from Mediterranean area and the Temperate Europe and remarks that the rejection of M. Vaufreys hypothesis on cogent typological ground, "by no means disposes of the notion that mirolithic industries of blade and trapeze type represent in some way and to some degree an emanation from cultures based on a more advanced form of economy". These industries appear to have spread into Europe from two main directions—West Mediterranean and South Russia. He finds no particular reason why these industries as are found in different parts of Europe and the Mediterranean area, should have developed from any single source. Rather, he finds a case for deriving them from indigenous, ultimately Upper Palaeolithic sources, because the right angled trapeze and the rhombic arrow heads are notably absent from mesolithic contexts in Iberia and the Mediterranean region which is characterized by the tanged points. For these two Belgium appears to be a possibility.

He concludes that the presence of flint industries characterized by blades and trapezes in Europe seems to be reasonably well established. "These industries related to communities which subsisted primarily on hunting, fishing and where conditions were favourable on the gathering of shell-fish; but in many parts of South-western Europe this predatory economy was supplemented by the herding of goats or sheep. It is possible that the adoption of the blade technique and the production of trapezes was in some way connected with the spread of incipient domestication and will prove to be an index or just possibly a fore-runner of a variety of pre-pottery neolithic".

In 'A Note on Graphical Osteometry and Evolution' published in *Man* December, 1958. Prof. L. S. Palmer has shown the evolution of Hominids and the relative position and affinities of different forms with the help of graphical treatment of "absolute osteometric measurements and relative anatomical indices whether they are dimensional or non-dimensional".

The interpretation of the graphs suggests a few possible theoretical deductions: if some, genetic relationship between the Pithencanthropoids in assumed "Man's rate of evolution . . . is a little over one darwin", which accords closely with the value calculated by Weidenreich and that "deduced from the application of Haldane's exponential law of human evolution to cranial capacities". The bifurcation of the graph may indicate a case of divergent evolution when the Neanderthaloids began to specialize—a probability suggested by Sir

Arther Keith. Including Swansombe it might be concluded that "the paedomorphic Nelanderthaloids and *Homo Sapiens* developed independently of the pethecanthropoids and the gerontomorphic or specialized Neanderthal men". From the plotting of cranial capacity of the Autralopiathecinae it can reliably be concluded that "These men—apes are not ancestral to man".

"When extrapolated backwards the graphs pass moderately close to the values for proconsul Africanus. This does not mean that man has descended from this Miocene ape but it does mean that he could have done. Extrapolations forwards of the upper branches suggest little change in man's cranial capacity" and the "lower ones pass close to the corresponding values for the Australian Aborigin. It is, therefore, tempting to conclude that the gerontomorphic Neaderthal man may be ancestral to the Australian native".

REVIEWS

NATURAL SELECTION IN MAN. ARRANGED BY J. N. SPUHLER,
WAYNE STATE UNIVERSITY PRESS, (1958), PP. 72.

The book contains several papers of the Wenner-Gren Supper Conference held at the University of Michigan, April 12, 1957, during a meeting of the American Society of Human Genetics and the American Association of Physical Anthropologists. There are four papers—(1) Some Possibilities for Measuring Selection Intensities in Man by James F. Crow, (2) The Influence of ABO System on Rh Hemolytic Disease by Philip Levine, (3) An Anthropogeographic Excursion Around the World by Charleton S. Coon, and (4) The Study of Natural Selection in Primitive and Civilized Human Populations by James V. Neel. The first paper indicates the possibility of measuring selection intensities at total, phenotypic and genotypic levels, and figures out an Index of Total Selection, on the basis of the study of children of consanguineous marriages. The effect of a changing environment on genic loci requires probe and the paper will stimulate thinking and research on an important problem of human genetics. Levine's article on the Influence of the ABO System on Rh Hemolytic Disease is informative and the conclusion pertinent. Further research on the role of ABO blood in the context of diseases will be awaited with interest. In his Presidential address to the British Association for the Advancement of Science, Dr. A. E. Mourant gave a significant lead in this context, and anthropologists and serologists would be interested to find more of such studies to understand the fate of natural selection. Neel's paper focusses attention to the study of means whereby human populations rid themselves of undesirable genes and conserve those advantageous to the species, though our knowledge on the subject, to use a common phrase, can be written 'on the back of a penny postage stamp'. Coon's world tour highlights the problems physical anthropologists are concerned with, and the gaps in our knowledge of racial frontiers and the ethnic history of the world. Coon has a style, and is certainly dynamic, but one wonders whether a hurried tour, of the type he went through, can be of much scientific value. By looking at a face, or seeing a few individuals selected by his host, no scientists would commit himself to statements like those that Mr. Coon has made. A supposed Mongolic fold discovered in a crowd of 'aboriginals' in Chotanagpur, and supposedly Negrito type features discovered in a distant corner of a vast subcontinent would not enable a scientist to pronounce such verdicts on the ethnology of the country. It is unfortunate that a physical anthropologist of Coon's stature would forget his scientific status and indulge in such hasty formulations,

particularly when his statements do carry weight with Indian anthropologists. In the welter of views regarding race and racial inheritance, physical anthropologists have a responsibility. They should weigh evidence, test theories, satisfy themselves completely before they dole out statements. Much harm has been done to physical anthropology by indiscreet formulations.

The three other papers in the book are important contributions. We recommend the book to our readers for the interest the papers have focussed and the direction of future research in human biology that the papers point to.

E.T.

A PHILOSOPHY FOR NEFA, BY VERRIER ELWIN, PUBLISHED BY NORTH-EASTERN FRONTIER AGENCY, SHILLONG, SECOND REVISED EDITION, (1959), PP. 296.

This is a controversial book. It raises several problems, How far what we preach do we practise? How far 'the philosophy' of a tribal people represents their *own* philosophy? How far the Government anthropologists can be objective? How far a philosophy of a tribe as understood by a missionary, or a foreigner, is true to the experiences of the people? How far we inspire and construct the philosophy of other people? All these and other relevant problems are significant in the context of applied anthropology. Verrier Elwin writes, "I have called myself a missionary of Mr. Nehru's gospel, and it is from this point of view that I have approached the many problems facing us. I did not come to tribal India (now exactly twenty seven years ago) from a school of anthropology, but from Gandhi's Ashram at Sevagram". One wonders if history is an accident. Elwin has been a Christian missionary. He was Reverend Father Elwin. He became an anthropologist, the Oxford degree put him on the map of anthropology, and now he is a Gandhite. One is at a loss to find out what Elwin's own philosophy is? In his 'Aboriginals', (Oxford University Press pamphlet), he put a philosophy of segregation; he said, the tribals have a way of life; this should be maintained, their songs and dances, their laughter and culture must be perpetuated; and he would not allow anthropologists, social reformers, politicians and all kinds of aliens to infiltrate among the tribes. He wanted a 'national park' for the tribes. Indian Constitution gave an adequate reply. It was an 'intervention therapy' that was recommended and the colossal efforts being made by the Government to rehabilitate the tribes and level them up indicate the dynamic upsurge leading to acculturation and assimilation. Dr. Elwin has succeeded in keeping anthropologists out of NEFA and he has been pleading for a social

reform approach, even anthropologists he wants to employ must be 'philanthropists'. One would pray for the anthropologist. The Prime Minister is quoted to have said, "I am alarmed when I see not only in this country but in other great countries too, how anxious people are to shape others according to their own image or likeness, and to impose on them their particular way of living. We are welcome to our own way of living, but why impose it on others?" 'The tribals', writes Elwin, in his introduction to the second edition 'live under special conditions, they have their own outlook and ways of doing things. But the attitude, human needs, aspirations, loves and fears are *exactly the same as ours*' (Italics ours). Elwin's 'segregation approach' was confused in the latter part of the previous decade as theso-called 'anthropological solution'. Even our Prime Minister had admonished the anthropologist, but it was not the latter's sin of commission, but Elwin's social philosophy as expressed in his pamphlets *The Aboriginal* and *Loss of Nerves*. No anthropologist, no Indian anthropologist, toed the line with Elwin. Yet, the stigma was put on the Indian anthropologists. Now, it is Dr. Elwin again who has reverted to his previous philosophy of exclusiveness and segregation. If the tribals have a way of life, so they have, and if we have no right to force our way of life on them, are we to suppose that we should concede what the tribals want? We know what they want; the echo of Jharkhand has reached NEFA—should we follow the philosophy of inaction and non-intervention? Our stakes are too great. We would have discussed the philosophy of the author, but the latter says, that he has learnt anthropology from our Prime Minister and the Prime Minister writes, '. . . it would, therefore, be more correct to say that I have learnt from him (Elwin) rather than that I have influenced him in any way.' But who influenced the author? Not Mahatma Gandhi, even if the author calls himself a Gandhite. What we need today, is not to emphasise differences but common denominators, and anthropologists do know that common denominator exists between tribals and tribals, between tribals and others, even if politicians may not want to know. It is a very convenient way of assuming the role of 'the man with the duster' by changing roles sometimes as an anthropologist, at other times as a reformer, and again as a missionary—this time of our Prime Minister.

E. T.

VILLAGE LIFE IN NORTHERN INDIA—STUDIES IN A DELHI VILLAGE BY OSCAR LEWIS, UNIVERSITY OF ILLINOIS PRESS, (1958), PP. xiii + 384.

This is an attractively produced book on Indian rural life as observed in a village community near Delhi. Professor Oscar Lewis of

Tepozatlan Restudied fame was appointed Consulting Anthropologist to the Ford Foundation in New Delhi in 1952. In order to 'know India at first hand' he decided to study a village. A Jat village about fifteen miles west of Delhi was chosen for this purpose. Professor Lewis and a team of seven Indian research students worked in this village for a period of eight months. And the result of their labours is the present study. This, in very brief, is the story of this book.

The book is what may be called a 'rural monograph', i.e., it contains descriptive accounts of the way of living in a village community. The generalizations sought to be established by the author, however, are for a setting which is much wider than the community studied by him, in fact, for India as a whole. Thus only the meaning of the last chapter [reprinted from Marriot (ed.), 'Village India', 1955] is understandable in a book of this type. The author's contention is that Rampur is as representative of rural India as Tepozatlan is of rural Mexico, also that both are comparable entities. Whether Rampur is really representative of rural India is doubtful. As a matter of fact, whether any single village in India can be representative of India as a whole is a moot question. This is a methodological problem of great importance, which, we feel, should not have been dismissed so lightly. Again, if we have to judge the competence of a nation for democracy or a socialistic pattern of society on the basis of such evaluations, as the author has done, we are probably banging on the wrong door.

Even as a straight and simple monograph, the book does not make its mark. It contains nine chapters (five reprinted from papers published elsewhere, and four freshly written) on social organization, economic life, festivals, religious ideas, marriage-cycle, indigenous concepts of and cures for certain diseases, and factions. In the somewhat lengthy chapter on marriage, some Punjabi folksongs have been given (or rather their translations; these appear to be of a poor standard). The chapter on festivals carries sketchy accounts of some festivals, but nothing more. The chapter on religious ideas and beliefs is disproportionately short. The general indication is that it is the product of hasty and shallow (rather than intensive!) field-investigations and quickly-arrived-at generalizations. Nor does it show an awareness of parallel work done by others. (The Index does not contain entries in the names of Marian Smith, Adrian Mayer, F.G. Bailey, to give only a few of those who have published useful material on Indian villages.) One searches in vain for signs of the professional capability one associates with the name of the author of *Life in a Mexican Village*. Prof. Lewis himself says that he knows Tepozatlan a lot better than he knows Rampur. But then, one has to know well to understand and compare, and particularly when one of the entities is to be the highly complex Indian society, one has to

know a really terrible lot. Perhaps that is too much to ask for in less than a year's acquaintance!

We regret to have to say all this. But this is one of the pioneer studies in Indian villages and pioneers have to be very cautious, since they set the model to be followed by those who come later. This certainly is not the type of book we in India had expected from Prof. Lewis. There is little in it that is useful to the theoretical rural anthropologist, less still what the rural administrator and reformer in India would want.

K.S.M.

THE THARUS—A STUDY IN CULTURE DYNAMICS, BY S. K. SRIVASTAVA, PUBLISHED BY THE AGRA UNIVERSITY PRESS, AGRA, (1958), PP. XXII+343, RS. 16.50.

More than seven years ago, S. K. Srivastava submitted a thesis entitled 'the Dynamics of Culture Change Among the Tharus of Tarai' for the Ph.D. degree in anthropology at the Lucknow University. This book has grown out of that thesis with very little variation in form and practically no change in content.

It is unfortunate that Dr. Srivastava has taken more than seven years to publish this work, largely due to circumstances beyond his control; publication of anthropological research material is not an easy job in India, and we are glad that he has at last been able to publish it in book form. It is an attractively produced book, and both the author and the publisher deserve to be congratulated.

Unfortunately the title chosen by Dr. Srivastava for his book is somewhat misleading. One would have expected to find an account of the socio-cultural life of the Tharu analysed in terms of the theory of cultural dynamics. Not only is the theoretical discussion and treatment of the material lacking in this book, but one is led to the conclusion that it is a 'grab-all' ethnographic monograph with superficial top-dressing in the form of the last chapter (Problems of Culture Contact and Culture Dynamics). One wonders why the author gave us only the descriptive ethnography of the Tharu of Nainital Tarai when he could very well have given us a comparative picture of the Tharu or a problem-oriented monograph on the tribe. He could, because we know he possesses literally stacks of material on the socio-cultural life of the Tharus.

As it is, the monograph is rich in factual detail supplemented by quantitative data, sketches and photographs wherever possible. It succeeds in giving to the reader a faithful picture of the Tharu as they live in the unhealthy climatic region of Tarai, of their struggle for existence against a hostile environment, of their contacts with non-Tharu, in general and with civilised plains-people in particular, and of how they are trying to adjust themselves to the changed environ-

ment. It is a story of a semi-wild tribe, and it is a story well told in its own way.

At a time when travel diaries and descriptive accounts of 'aboriginal' and 'tribal' people by amateur anthropologists and even non-anthropologists are dumping the field, a sound ethnographic monograph by a trained social anthropologist is like a whiff of fresh air. To the meagre (but steadily growing) ethnographic literature on tribes in India, it is a welcome addition.

K.S.M.

BANSARI BAJ RAHI BY JAGDISH TRIGUNAYAT, BIHAR RASTRABHASA PARISAD, PATNA, (1957), PP. 421, PRICE BOUND RS. 8.00, ORDINARY RS. 6.75.

In this volume the author has compiled, classified and interpreted Munda folk songs for the benefit of Hindi knowing readers. The book is divided in two parts. Part I contains a general discussion on the study of folk-lore, focussing mainly on the problems of approaches, objectives and methods in such studies. The section on Munda language, and the resume of earlier attempts at collection of Munda folk songs is informative. One chapter is devoted to highlight the excellence of technique, realistic and touching depiction of situations and emotions and spontaneity of expression in these songs. Part II comprises the main bulk of the volume, containing full texts of Munda folk songs with their literal (and not literary) translation in easy prose. A useful appendix and a map showing the present distribution of Mundas in Bihar complete the content make-up of this study.

The scarcity of *anthropological* studies of folklore or any one aspect of it has been lamented by all interested in (1) the collection of folklore in accordance with the scientific methods of data-gathering which form a *sine qua non* of anthropological field-work and (2) the interpretation of folk songs against the background of the total culture of a people and as embodying some of the most dominant themes of that particular culture. Shri Trigunayat's attempt does not meet either of these requirements, and this is nothing unexpected from a non-initiate in anthropology. However, whereas the author leaves us in the dark about the methods employed in data collection and means adopted to check their objectivity and validity, his *awareness* of such broad anthropological modes of thinking as cultural relativism and total culture is indeed heartening. It is thus that this collection, although prepared in the old tradition of literary compilation of folk songs, has a freshness of outlook which is distinguishing. The inspiration for this work, in the author's own words, is largely humanitarian. It is an attempt to explore some of the hidden beauties of Munda folk songs and their utility in making for gaiety, abandon, a will to live among the tribal folk. Enthused by such a motive, the author apprao-

ched this assignment after gaining a thorough knowledge of the Munda dialect and by staying in the Munda locale over a considerable stretch of time. The result is an exhaustive and appreciative commentary on Munda music and dance set against a fairly full blooded picture of their culture. The narrative is set in a literary strain but the language becomes flowery and ornate with uncomfortable frequency (pp. 11, 33, etc.). His emotional involvement with the people studied seems responsible for some of the unwary remarks which were better avoided. Some of his strictures against earlier compilations are surely uncalled for, e.g., the terms he uses to denounce the late S. C. Roy's translations of Munda folk songs (p. 23) are unbecoming. By means of emotional argument the reader is given to understand that Haimendorf's assertion of an irrational element in Konyak Naga folk songs betrays, in reality, an unsympathetic interpretation (p. 4).

But for such skewed observations in the introductory portion, the book is an essay in breadth of coverage combined with a meticulous regard for all that may have been essential for understanding Munda folk songs, e.g., the phonetic structure of the language. It is a laudable effort and a welcome addition to folklore literature in Hindi.

Ravindra Jain

SAMAJ SASTRA KE MUL-TATVA (ELEMENTS OF SOCIOLOGY)
BY NARMADESHWAR PRASAD, PUBLISHED BY KUSUM PRAKASHAN,
PATNA, (1958), PP. 418, PRICE, RS. 11.25.

Dr. Prasad has written a fine introductory book on the principles of sociology in Hindi. During the last several years, a good number of books on elementary sociology have appeared, but none of them, we feel, compares with this one, in the comprehensiveness of the field covered, in the treatment of matter, in lucidity of style, or in original presentation.

To cover the broad and difficult field of the principles and elements of sociology a little over 400 pages is a tough job; it is tougher to make it intelligible to under-graduate students of sociology and to lay readers. But Dr. Prasad has done it and done it well. The grasp of the author over the subject matter and his ability to communicate it to others in a simple way are clearly stamped on every page of this book.

It is an interesting and useful book and will fulfil a long-felt need—that of an authoritative handbook on the elementary principles and foundations of sociology. The absence of a bibliography and an index are avoidable lacuna, and we hope he will make the desired incorporation of these in the next edition.

V.K.

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sociological abstracts

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**PUBLISHED BY THE ETHNOGRAPHIC & FOLK
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